

ISCU 2023

International
Society of
Cutaneous
Ultrasound

3rd–4th November 2023 · Pisa · Italy

SIDeMaST



Società Italiana di Dermatologia
e Malattie Sessualmente Trasmesse



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Welcome

Dear attendees, colleagues, and friends,

It gives us great pleasure to welcome you all to the highly anticipated 1st meeting of International Society of Cutaneous Ultrasound (ISCU), which will take place in Pisa, Italy, on 3rd – 4th November 2023.

The conference brings together experts, practitioners and companies involved in cutaneous ultrasound. Professionals attending the conference will benefit from high-level scientific presentations, knowledge sharing and networking opportunities. We have prepared an interesting program that includes keynote lectures and hands-on workshops.

The aim of ISCU meeting is to develop a multidisciplinary international network to disseminate the knowledge on the ultrasonographic study of skin and subcutaneous tissue, to better understand the evolution of skin diseases from early to advanced stages, allowing early diagnoses and correct ultrasound-guided treatments. Bridging the gap between diagnosing and treatment to exploit the potential of implementing ultrasound techniques for skin. The conference provides a platform to present state-of-the-art research, projects, and clinical cases from an international forum to a wide network of professionals from all around the world.

It is our hope that ISCU will serve as a platform for fostering connections among leading scientists and professionals. And that together, we will foster insightful discussion around current challenges and prospects so we can contribute to the broader fields of cutaneous ultrasound.

We hope you will enjoy the conference and your time in Pisa.

On behalf of the ISCU Board, we extend our warmest welcome to PISA and ISCU!

Sincerely,
Valentina Dini,
ISCU chair

Organisation

Scientific Committee



Valentina Dini
Department of
Dermatology,
University of Pisa, Italy



Teresa Oranges
Dermatology Unit,
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Dermatology, Pontificia
Universidad de Chile,
Santiago, Chile



Antonio Martorell
Department of Dermatology,
Manises Hospital, Valencia,
Spain

General Information

Conference website

www.is-cu.org

Congress venue

3 – 4 November 2023

Venue

The Monastery of

S. Benedetto

Piazza S. Paulo a Ripa

D'Arno, 16

56125 Pisa, Italy

Conference Secretariat

CAP Partner

Nordre Fasanvej 113, 2

DK-2000 Frederiksberg

Denmark

Tel.: +45 70 20 03 05

info@cap-partner.eu

www.cap-partner.eu

Badges

The congress name badges must always be worn during the congress. Access to the congress venue will not be granted without the name badge issued by the Conference Secretariat. The badges must also be worn to access the welcome reception as well as the congress dinner.

Information for Speakers

Please make sure to send your presentation by email to lha@cap-partner.eu at the latest 4 hours before the session begins. We kindly ask you to name your file with *your name followed by the title of your presentation*.

We do not allow the use of personal laptops for presentations.

At the end of the congress, all presentations will be deleted to secure that no copyright issues will arise.

WIFI

Network: WiFi Extreme

Please register and follow the instructions.

CME Points

The International Society of Cutaneous Ultrasound Conference 2023 has been accredited by the European Accreditation Council for Continuing Medical Education (EACCME®) with 8 European CME credits (ECMEC®s) for each conference day.

Please note that in order to obtain CME credits, you must attend all sessions in the programme and you must sign that you have done so at the end of each conference day. Contact the registration desk for more information.



Dinner

Conference Dinner

3 November 2023

19.30 – 22.00

Palazzo BLU

Lungarno Gambacorti, 9,

56125 Pisa, Italy

Friday 3 November

Time	Room	Title
07:45	EXHB.	Registration desk opens
08:30	AULA A	Welcome and Introduction to ISCU <i>Honorary presidents: Marco Romanelli and Davide Caramella</i>
09:00–10:10	AULA A	SCIENTIFIC SESSION 1 Essentials of dermatologic ultrasound <i>Chair: Ximena Wortsman, Francesco Lacarruba & Massimo Rollo</i>
	13 min	Normal Anatomy <i>Orlando Catalano</i>
	13 min	Protocols and Guidelines <i>Antonio Martorell</i>
	13 min	How to select the device for dermatologic/aesthetic ultrasound <i>Ximena Wortsman</i>
	13 min	Potential applications of ultrasound in dermatology 1 <i>Elisa Cinotti</i>
	13 min	Potential applications of ultrasound in dermatology 2 <i>Linda Tognetti</i>
10:15–11:15	AULA A	SCIENTIFIC SESSION 2 Cutaneous tumors <i>Chair: Diana Crisan, Marina Venturini & Sara Susca</i>
	13 min	Ultrasonographic key signs of frequent benign cutaneous tumors <i>Eva Vilarrasa (moved to 4 November)</i>
	13 min	The role of ultrasound in non-melanoma skin cancer <i>Diana Crisan</i>
	13 min	Melanoma: new potential approaches <i>Teresa Oranges</i>
	13 min	Vascular tumors: ultrasound assessment <i>Irene Salguero</i>
11:15–11:30	EXHB.	Coffee break and posters

Friday 3 November

Time	Room	Title
11:30-12:25	AULA A	SCIENTIFIC SESSION 3 Inflammatory cutaneous conditions <i>Chair: Antonio Martorell & Claudio Marasca</i>
	13 min	The role of ultrasound in hidradenitis suppurativa assessment <i>Ximena Wortsman</i>
	13 min	The role of ultrasound in hidradenitis suppurativa treatment <i>Antonio Martorell</i>
	13 min	Psoriasis: a multidisciplinary point of view <i>Andrea delle Sedie</i>
	13 min	Atopic dermatitis and ultrasound <i>Fernando Alfageme</i>
12:30-13:45	AULA A	SCIENTIFIC SESSION 4 Short communications <i>Chair: Francesco Esposito, Francesca Farnetani & Corrado Campisi</i>
	12 min	Advantages of Ultra-High Resolution Ultrasound-guided biopsy of labial salivary glands in primary Sjögren's disease and impact on lymphoproliferative lesions detection <i>Giovanni Fulvio</i>
	12 min	The role of Ultra-High frequency ultrasound in preoperative evaluation of lymphedema patients <i>Alberto Bolletta</i>
	12 min	Steatocystomas multiplex in patients with Hidradenitis Suppurativa: the relevant role of Ultrasonography <i>Guilia Nunziati</i>
	12 min	High-Frequency Ultrasound Features of Periungual Superficial Acral Fibromyxomas <i>Andrea Sechi (moved to 4 November)</i>
	12 min	Dot in a circle, the characteristic ultrasound appearance of mycetoma <i>Stefano Bighetti</i>
13:30 - 14:30	EXHB.	Lunch Break and posters

Friday 3 November

Time	Room	Title
14:45 - 18:00		SESSION 5 Hands-on workshops
	AULA L	Inflammatory cutaneous conditions: hidradenitis suppurativa Speaker: Antonio Martorell
	AULA H	Inflammatory cutaneous conditions: psoriasis and psoriatic arthritis Speaker: Andrea delle Sedie & Saverio Vitali
	AULA C	Atopic dermatitis and immune mediated inflammatory diseases Speaker: Fernando Alfageme
	AULA E	Vascular anomalies Speaker Irene Salguero
	AULA I	Normal anatomy Speaker: Orlando Catalano

Saturday 4 November

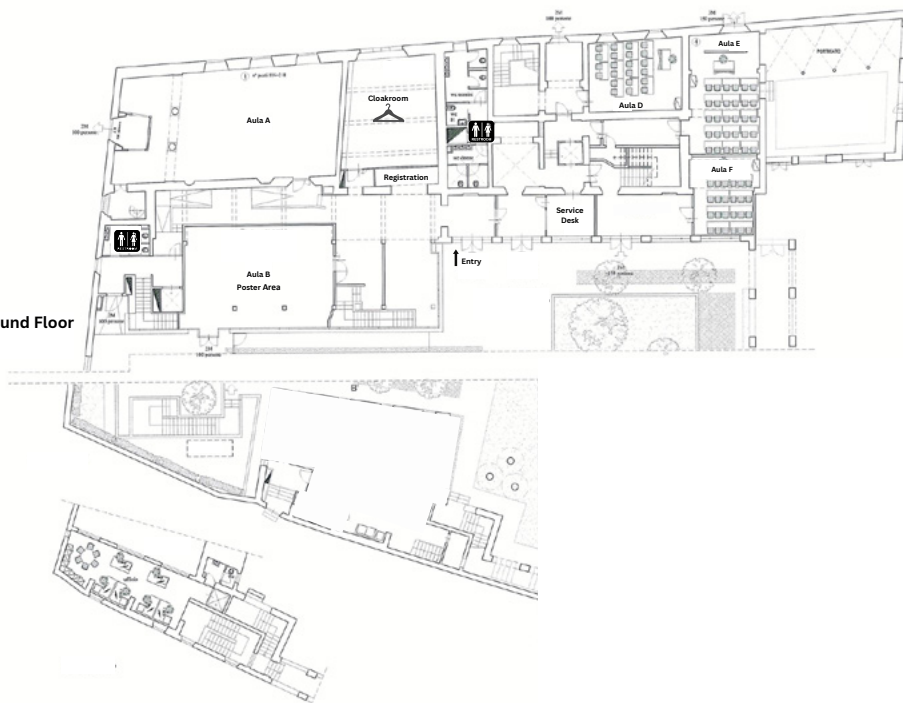
Time	Room	Title
08:30–10:05	AULA A	SCIENTIFIC SESSION 6 Autoimmune cutaneous conditions <i>Chair: Valentina Dini, Salvatore Panduri & Marco Manfredini</i>
	12 min	O4: High-Frequency Ultrasound Features of Periungual Superficial Acral Fibromyxomas <i>Andrea Sechi</i>
	13 min	Sjogren syndrome: what's new? <i>Chiara Baldini</i>
	13 min	Oral mucosa diseases and ultrasound <i>Rossana Izzetti</i>
	13 min	The role of ultrasound in the assessment of bullous diseases <i>Valentina Dini</i>
	13 min	Ultrasound in connective tissue diseases <i>Priscila Giavedoni</i>
	13 min	The role of ultrasound in diagnosis and treatment of localized scleroderma <i>Gianluca Nazzaro</i>
10:10–11:30	AULA A	SCIENTIFIC SESSION 7 Ultrasound in aesthetics <i>Chair: Fernanda Cavallieri & Fernando Alfageme</i>
	13 min	Detection and identification of cosmetic fillers <i>Fernanda Cavallieri</i>
	13 min	Complications of cosmetic fillers <i>Claudia Gonzalez</i>
	13 min	Non-filler aesthetic products <i>Natalia Jimenez</i>
	13 min	Ultrasound-guided management of vascular occlusion <i>Fernanda Cavallieri</i>
11:15 – 11:45	EXHB.	Coffee break and posters
11:45–12:30	AULA A	SCIENTIFIC SESSION 8 Ultrasound in skin surgery <i>Chair: Antonio Martorell, Carlo Gandolfo and Marco Manfredini</i>
	13 min	Pre-surgical mapping in skin cancer <i>Diana Crisan</i>
	13 min	Identification of the lymphatic vessels and practical applications <i>Marzia Salgarello</i>
	13 min	Melanoma: The locoregional staging <i>Orlando Catalano</i>
	13 min	Preoperative ultrasound evaluation in reconstructive microsurgery <i>Emanuele Cigna</i>

Saturday 4 November

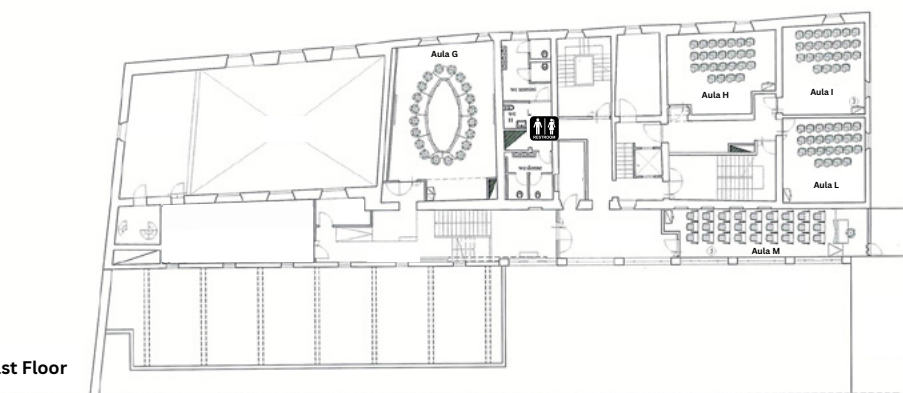
Time	Room	Title
12:45–14:00	AULA A	SCIENTIFIC SESSION 9 Follicular and nails diseases <i>Chair: Teresa Oranges & Raffaele Dante Caposiena</i>
	13 min	Alopecia: diagnosis and monitoring Fernando Alfageme
	13 min	Ultrasound in follicular and sebaceous glands conditions Ximena Wortsman
	13 min	Acne vulgaris: how can ultrasound help? Claudia Gonzalez
	13 min	Ultrasound in common nail pathologies Ximena Wortsman
	10 min	Best oral presentation Best poster presentation
14:00 – 14:45	EXHB.	Lunch Break and posters
14:45–17:50		SESSION 10 Hands-on workshops
	AULA C	Ultra-high frequency ultrasound <i>Valentina Dini & Teresa Oranges</i>
	AULA L	Discrimination of cosmetic fillers <i>Fernanda Cavaliere, & Claudia Gonzalez</i>
	AULA E	Nail diseases and follicular diseases <i>Ximena Wortsman</i>
	AULA H	Skin cancers and benign tumors <i>Diana Crisan & Eva Vilarrasa</i>
17:50–18:20		Closing ceremony of ISCU 2023

Floorplan

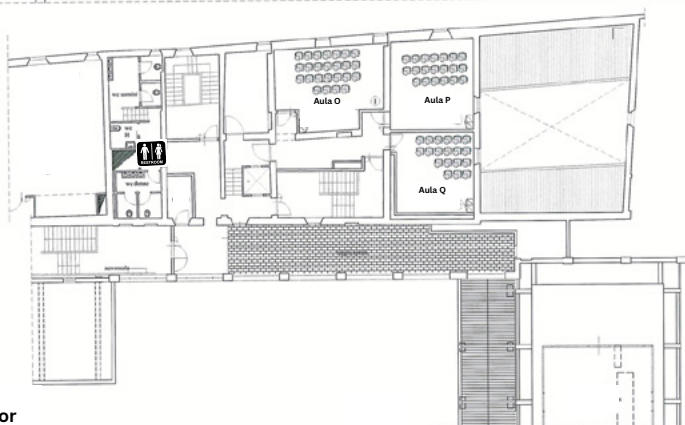
Ground Floor



1st Floor



2nd Floor



Invited Speaker Abstracts

Friday 3 November 2023, 09:00-10:10

Scientific Session 1 – Essentials of dermatologic ultrasound
NORMAL ANATOMY

Orlando Catalano

Department of Radiology, Varelli Diagnostic Institute, Naples, Italy

The skin is composed of three functionally-connected layers namely, from top to bottom, the epidermis, the dermis, and the hypodermis. In this presentation I will discuss the appearance of these layers, as seen at high-frequency ultrasound (15-30 MHz) and at ultra-high frequency ultrasound (30-70 MHz). It should be however kept in mind that, aside from the technology employed, the normal skin anatomy varies according to patient sex, age, body mass index, hydration status, anatomic area, and sun exposure habit.

The epidermis has a highly pleomorphic cellular content, although 95% of cells are keratinocytes synthesizing keratin. It appears as a very thin hyperechoic line, continuous and uniform, placed below the anechoic gel. It should not be confused with the probe surface or echo entrance, also hyperechoic. In infants, in eyelid, and in the ventral areas the epidermis is quite thin. Oppositely, in the glabrous skin of the palms and soles, the epidermis is particularly thick and appears as a bilaminar echoic structure, which is the result of the contrast between the epidermis itself and the thick and compact stratum corneum. Color-Doppler will not show any signal, because the epidermis is a nonvascular tissue. The dermal-epidermal junction cannot be distinguished at US.

The dermis is dominated by packages of organized collagen, providing the supporting structure to the skin. It includes blood vessels, lymphatics, nerves, hair follicles, and sweat glands. The dermis is hyperechoic, although to a lower degree than the epidermis. This echogenicity can be influenced by the hydration status and the anatomical site. From the histological point of view, the dermis includes the thinner, superficial layer of the papillary dermis and the thicker, deeper layer of the reticular dermis. These two layers differ in the way collagen fibers are arranged. US cannot readily differentiate these two components, although the upper dermis may be less echoic than the lower one. The thickness of the dermis changes in the different body areas and decreases with aging. In the older ages the deposit of glycosaminoglycans produces a hypoechoic upper dermal band on exposed to sun regions, called the subepidermal low echogenicity band. Assessment of this band can be relevant in skin aging studies and aesthetics. Importantly, it should not be confused with inflammatory conditions. Although present in the dermis, particularly in its deeper portion, vessels are usually not detectable at the common Doppler frequencies used for studying dermatologic lesions, due to their very slow velocity, commonly 2 cm/s or less. Using newer technologies for the study of the microvasculature may allow to detect some more flow signals in the dermis. The hair follicles can be detected in the dermis as small and ill-defined hypoechoic structures arranged obliquely. At 70 MHz, it is possible to detect the sebaceous glands besides the hair follicles (pilosebaceous unit) and the erector pili muscle. The bottom of the hair follicles can be found in the dermis as well as the hypodermis, depending on the phase of the hair growth cycle and the anatomic location. At 70 MHz, the hair tract within the hair follicle, the apocrine and Montgomery glands can also be observed in some body regions.

The hypodermis (subcutaneous tissue) is the thickest layer. It is thinner in the dorsal aspect of the fingers and more abundant in the trunk. The

subcutaneous tissue is formed of fat lobules, hypoechoic, encased between hyperechoic fibrovascular septa in a honeycomb-like structure. Arrangement, shape, and size of the adipose lobules vary according to the sex, body area, and depth of location. The septa anchor the dermis to the deeper planes. The anatomy comprises two adipose layers, superficial and deep, with an interposed membranous fascia. The superficial adipose layer is formed of large fat lobules and thin fibrous septa, predominantly arranged obliquely-vertically. The membranous layer (superficial fascia) is a continuous fibrous membrane rich in elastic fibers with a nonuniform thickness. In the deep adipose layer, the fibrous septa are less consistent and mostly oriented obliquely-horizontally, whereas the fat lobules are smaller, flat, and less well defined. Below this fat layer there is the deep fascia (muscle fascia) and the muscular plane. The deep fascia has a mean thickness of 1 mm in cadavers and is formed by two-three layers of parallel collagen fiber bundles. Ligaments between the skin and muscle fascia are extensively present in the face, hands, feet, and breast. At US, fasciae are seen as hyperechoic, continuous, regular lines. The hypodermis frequently shows vessels at B-mode and color Doppler imaging. Typically, thin, low-speed arteries and, most commonly, larger veins are found within the subcutis, particularly in the superficial portion. These vessels show branches that stop at the dermal edge. Sensory nerves may be seen adjacent to the deeper veins in the hypodermis. Lymphatics are not visible.

Friday 3 November 2023, 09:00-10:10

**Scientific Session 1 – Essentials of dermatologic ultrasound
PROTOCOLS AND GUIDELINS**

Antonio Martorell

Dermatology Department, Hospital de Manises, Valencia, Spain

Over the past few years, ultrasound has emerged as a valuable technique that can assist dermatologists in enhancing their ability to diagnose and manage patients effectively. However, due to the lack of specific evidence-based guidelines, the development of precise instructions for conducting ultrasound examinations is lacking.

In this lecture, we will explore the most significant efforts to establish guidelines for performing dermatologic ultrasound examinations. We will also propose a training program for ultrasound assessment and review the European Federation of Societies for Ultrasound in Medicine and Biology (EFSUMB) Position Statement on Dermatologic Ultrasound

Friday 3 November 2023, 09:00-10:10
Scientific Session 1 – Essentials of dermatologic ultrasound
**HOW TO SELECT THE DEVICE FOR DERMATOLOGIC/
AESTHETIC**

Ximena Wortsman

Institute for Diagnostic Imaging and Research of the Skin and Soft Tissues, Santiago, Chile

Department of Dermatology, Universidad de Chile, Santiago, Chile

Department of Dermatology, Pontificia Universidad de Chile, Santiago, Chile.

We will review the main requisites for performing dermatologic ultrasound and how to select an ultrasound device according to the main objectives of our practice.

Advantages and disadvantages of the types of equipment will be provided. Tips for having a good quality practice with these machines are discussed.

Friday 3 November 2023, 09:00-10:10

**Scientific Session 1 – Essentials of dermatologic ultrasound
POTENTIAL APPLICATIONS OF ULTRASOUND IN
DERMATOLOGY 2**

Linda TOGNETTI, Elisa CINOTTI, Pietro RUBEGNI

*U.O.C. Dermatologia, Dipartimento Scienze Mediche, Chirurgiche e Neuroscienze –
Università degli Studi di Siena*

The use of skin ultrasound (US) in dermatology practice has been increasing in the last decades. This is especially related to the development of new devices based on high (17-22MHz) and ultra-high (70-100 MHz frequencies), that allow the visualization of epidermal architecture, dermal and hypodermal structures reaching the external muscularis fascia. US devices based on medium frequency (5-8MHz) rest the first choice for emergency department/ internal medicine use. A series of skin conditions in which the diagnosis can be challenging from a clinical point of view show peculiar features on US examination. Exemplificative cases commonly encountered in dermatological daily practice ARE here discussed. Using either medium frequency US (MFUS) or high frequency US (HFUS), or both, add several advantages: non-invasive differential diagnosis of these conditions is realized in a fast and not painful way; a lesional area can be defined in dimension, content, vascularization and relationship with surrounding tissues; the effect and efficacy of a specific treatment can be monitored and validated.

Friday 3 November 2023, 10:15-11:15
Scientific Session 2 – Cutaneous tumors
THE ROLE OF ULTRASOUND IN NON-MELANOMA SKIN
CANCER

Diana Crisan

Clinic of Dermatology and Allergology, University Hospital Ulm, Germany

High-frequency ultrasound (HFUS) is a quick, “in vivo,” non-invasive and very reliable imaging method for the evaluation and characterization of non-melanoma skin cancer (NMSC), including the precise visualization of its locoregional extent, infiltration into deeper structures and relationship to important neurovascular structures. The technique has significant growth potential in our daily practice, offering in vivo complementary and essential parameters which support the clinical diagnosis and can significantly improve the therapeutical management, especially in the field of dermatologic surgery and oncology, where it may aid in avoiding unnecessary procedures and increasing patients’ compliance. In some cases of basal cell carcinomas (BCC) for instance, the knowledge of the infiltration depth, as assessed by ultrasound, can make a difference between a surgical or non-surgical approach. For squamous cell carcinoma (SCC), sonography can aid in identifying high-risk tumors (tumor infiltration depth > 6 mm) or the presence of locoregional metastasis at diagnosis, leading to an optimisation of the therapeutic approach, a correct staging of the patient and often cancellation of surgical steps in favor of radiooncological therapies. For Dermatofibrosarcoma protuberans (DFSP), pre-operative sonography can help identify subclinical lesions with high accuracy, cancelling the need of other, more expensive and not always available imaging methods, enabling a faster achievement of a complete tumor resection. For Merkel cell carcinoma (MCC), sonography can aid in the presurgical setting in the identification of the tumor infiltration depth as well as a potential locoregional extent, which can alter the therapeutic approach.

In this presentation we discuss the role of sonography in the assessment of NMSC, as well in cases of other more rare tumors, such as Merkel cell carcinoma, Dermatofibrosarcoma protuberans or cutaneous sarcomas.

Friday 3 November 2023, 10:15-11:15
Scientific Session 2 – Cutaneous tumors
Melanoma: New potential approaches

Teresa Oranges

Dermatology Unit, Department of Pediatrics, Meyer Children's Hospital, IRCCS, Florence, Italy

Early malignant melanoma (MM) detection improves prognosis and survival rates. The use of ultra-high frequency ultrasound (UHFUS) system can give crucial information for the assessment of MM.

In particular, the use of the 70 MHz probe of Vevo MD (Fujifilm, Visualsonics, Toronto, Canada), a peculiar UHFUS with a resolution of 30 μm , can help clinicians to measure the maximum depth of the lesions, map the margins, detect any satellite or in transit metastases and differentiate MMs from benign skin lesions. Moreover, the color Doppler evaluation provides additional information, that can be useful in particular in case of data processing with machine learning approaches. We propose a ultrasonographic-histopathological protocol which may help to reduce the diagnostic delay, improve prognosis and survival rates, perform a surgical excision with negative margins, and reduce the variability in the assessment of Breslow thickness.

Friday 3 November 2023, 11:30-12:25

**Scientific Session 3 – Inflammantory cutaneous conditions
THE ROLE ULTRASOUND IN HIDRADENTIS SUPPURATIVA**

Ximena Wortsman

Institute for Diagnostic Imaging and Research of the Skin and Soft Tissues, Santiago, Chile

Department of Dermatology, Universidad de Chile, Santiago, Chile

Department of Dermatology, Pontificia Universidad de Chile, Santiago, Chile.

This lecture will review the objectives to perform an ultrasound examination, the updated diagnostic ultrasound criteria, and the sonographic scorings of severity and activity of hidradenitis suppurativa.

Friday 3 November 2023, 11:30-12:25

**Scientific Session 3 – Inflammantory cutaneous conditions
THE ROLE OF ULTRASOUND IN KIFRADENTIS SUPPURATIVA**

Antonio Martorell

Dermatology Department, Hospital deManises, Valencia, Spain

Skin ultrasound has marked a significant advancement in the management of Hidradenitis Suppurativa (HS) patients. In this lecture, we will explore the role of this technique in the therapeutic decision-making process, covering the following aspects:

- a. The use of ultrasound to define HS phenotypes.
- b. Utilizing ultrasound to determine HS features relevant to both medical and surgical decisions.
- c. Employing ultrasound as a technique to enhance safety measures during HS surgery.

Friday 3 November 2023, 11:30-12:25

**Scientific Session 3 – Inflammantory cutaneous conditions
ATOPIC DERMATITIS AND ULTRASOUND**

Dr Fernando Alfageme

Dermatologist

Dermatology service Hospital Puerta de Hierro Majadahonda

Atopic dermatitis (AD) is a chronic inflammatory skin condition characterized by pruritus, erythema, and eczematous lesions. Traditional methods for assessing AD severity have relied on clinical evaluation and subjective scoring systems. However, the recent application of ultrasound imaging in dermatology has provided a non-invasive and objective means to assess various skin conditions, including AD.

This abstract summarizes the current state of knowledge regarding the use of ultrasound in the evaluation and management of atopic dermatitis.

Ultrasound offers several advantages in AD assessment, including its ability to visualize skin layers, measure skin thickness, and assess underlying tissue characteristics such as edema and inflammation. It provides valuable insights into disease progression, response to treatment, and the identification of subclinical changes that may not be apparent during clinical examination.

In conclusion, ultrasound imaging represents a valuable tool in the comprehensive evaluation and management of atopic dermatitis. Its non-invasive nature, ability to provide objective data, and potential for guiding innovative treatments make it a promising addition to the armamentarium of dermatologists in the care of patients with AD. Further research is needed to refine its utility and expand its applications in the field of dermatology.

Saturday 4 November 2023, 08:30-09:45
Scientific Session 6 – Autoimmune cutaneous conditions
ORAL MUCOSA DISEASES AND ULTRASOUND

Rossana Izzetti

*Department of Surgical, Medical and Molecular Pathology and Critical Care Medicine,
University of Pisa*

Unit of Dentistry and Oral Surgery, Pisa University Hospital

Intraoral ultrasonography has been employed since the early 2000s in the assessment of oral lesions, especially of neoplastic origin. The development of ultra-high frequency techniques has promoted an increasing use of ultrasonography in oral medicine, for the assessment of both normal anatomy and disease. The ultrasonographic features of normal oral soft tissues will be described, as well as some of the most common oral lesions which can be encountered during routine dental practice. Moreover, the cutting-edge research on ultrasound guided procedures will be presented, with a focus on the predictability of tumor resection by means of intraoral ultrasonography and the association between depth of invasion and the development of lymph nodal metastases.

Saturday 4 November 2023, 08:30-09:45

**Scientific Session 6 – Autoimmune cutaneous conditions
THE ROLE OF ULTRASOUND IN DIAGNOSIS AND TREATMENT
OF LOCALIZED SCLERODERMA**

Gianluca Nazzaro

*Department of Surgical, Medical and Molecular Pathology and Critical Care Medicine,
University of Pisa*

Unit of Dentistry and Oral Surgery, Pisa University Hospital

Morphea, or localized scleroderma, is a chronic inflammatory skin disease that may affect skin and deeper tissues [1]. The clinical course may be progressive to skin thickening or atrophy. Its therapeutic management include anti-inflammatory drugs, both topical and systemic, while for atrophic and sclerotic lesions, topical vitamin E and topical or intramuscular polydeoxyribonucleotides have been reported to be effective in restore or improve skin texture.

Although no specific autoantibodies correlate with activity, ultrasound evaluation of morphea plaques can be of paramount importance in order to decide the best therapeutic decision. Assessing disease activity and depth is important also for follow-up consultations.

Sonography can predict morphea activity [1], i.e. inflammatory plaques, if increased blood flow is detectable. Furthermore, increased dermal thickness, decreased dermal echogenicity (focal or diffuse) and increased subcutaneous tissue echogenicity have been reported in active lesions. Atrophic lesions present decreased dermal and subcutaneous thickness and absence of blood flow at Doppler examination. An ultrasound morphea activity scoring (US-MAS) tool was built for evaluating response to treatment [3, 4]. US-MAS scoring parameters included: increased echogenicity of the subcutaneous tissue, dermal or sub-cutaneous hypervascularity, blood flow type (arterial vs. venous), and the number of ultrasonographically affected corporal segments.

The oral presentation will report the more recent update about sonography of morphea and its role in diagnosis and follow-up.

References

- [1] Knobler R, Moinzadeh P, Hunzelmann N, et al. European Dermatology Forum S1-guideline on the diagnosis and treatment of sclerosing diseases of the skin, Part 1: localized scleroderma, systemic sclerosis and overlap syndromes. *J Eur Acad Dermatol Venereol* 2017; 31: 1401-24
- [2] Wortsman X, Wortsman J, Sazunic I, Carreño L. Activity assessment in morphea using color Doppler ultrasound. *J Am Acad Dermatol*. 2011 Nov;65(5):942-8.
- [3] Vera-Kellet C, Meza-Romero R, Moll-Manzur C, Ramírez-Cornejo C, Wortsman X. Low effectiveness of methotrexate in the management of localised scleroderma (morphea) based on an ultrasound activity score. *Eur J Dermatol*. 2021 Dec 1;31(6):813-821.
- [4] Wortsman X, Vera-Kellet C. Ultrasound Morphea Activity Scoring (US-MAS): Modified US-MAS. *J Ultrasound Med*. 2023 Oct;42(10):2447-2450.

Saturday 4 November 2023, 09:50-10:50
Scientific Session 7 – Ultrasound in aesthetics
DETECTION AND IDENTIFICATION OF COSMETIC FILLERS

Fernanda Cavallieri

Radiologist

Dermatologic Ultrasound Specialist

*Coordinator of the *latu sensu* Post Graduation Course “The Face Design”, Instituto Lapidare, Brazil*

Current Secretary of Dermatologic Community at AIUM (American Institute of Ultrasound in Medicine)

Detection and identification of cosmetic fillers

In this lecture, we will encompass the ultrasound characteristics of different fillers, emphasizing the importance of facial mapping before aesthetic procedures and in the face of aesthetic complications.

Saturday 4 November 2023, 09:50-10:50
Scientific Session 7 – Ultrasound in aesthetics
COMPLICATONS OF COSMETIC FILLERS

Dr. Claudia Gonzalez

Radiologist Rosario University, Bogotá DC, Colombia Vice chair of the Dermatologic Ultrasound Community and Member at the American Institute of Ultrasound in Medicine (AIUM Leadership Dermatology; www.aium.org. Fellow MSK Ultrasound Catoly University of Murcia, Spain. Private Practice. Highly Specialed Center for Ultrasound . Bogotá DC, Colombia

The use of filler material for cosmetic effects is the second most common procedure in aesthetic medicine, most performed in the world after the application of botox. The substances used as fillers can be for approved medical use such as hyaluronic acid, polycaprolactone and calcium hydroxyapatite; or on the contrary, it corresponds to a non-degradable filler material and for non-approved medical use in aesthetic medicine such as Silicone. Complications arising from the use of these substances include visible and palpable nodules, signs of overcorrection, dermatopathy reactions, abscesses, cellulitis and vascular occlusion complications that can even lead to death. In some scenarios the clinical diagnosis is clear, however on many occasions the behavior of the complication may not be characteristic and a precise diagnostic tool such as high-resolution ultrasound is required. With high-resolution ultrasound and the use of duplex color Doppler it is possible to identify with complete precision the substance or substances injected, clarify the type of complication, establish the level of absorption and degradation of the product, identify the vascular structure or structures involved in acute occlusion processes and it is possible under ultrasound guidance to dissolve products such as acid and hyaluronic, this allows to obtain improvement of complications in a more accurate, timely and appropriate way.

Saturday 4 November 2023, 09:50-10:50
Scientific Session 7 – Ultrasound in aesthetics
NON-FILLER AESTHETIC PRODUCTS

Dr. Natalia Jiménez

Ramon y Cajal University hospital and Grupo de Dermatología Pedro Jaén, Madrid

Currently, non-invasive, or minimally invasive aesthetic treatments are constantly increasing. These procedures are not free of adverse events, so complementation with imaging techniques may be useful to reduce the number of complications. Cutaneous ultrasound plays an interesting role in the planning and monitoring of these treatments, helping to make them safer. We know that this imaging technique is of great help in identifying facial fillers and their possible complications, but it is increasingly used in other rejuvenation techniques. Throughout my presentation I will show how cutaneous ultrasound can be useful in the planning and monitoring of treatments such as deoxycholic acid for reduction of submental fat and in other situations such as platelet-rich plasma gel, tension threads and new techniques for the treatment of sagging, such as radiofrequency micro needling.

Saturday 4 November 2023, 09:50-10:50
Scientific Session 7 – Ultrasound in aesthetics
ULTRASOUND-GUIDED MANAGEMENT OF VASCULAR
OCCUSION

Fernanda Cavallieri

Radiologist

Dermatologic Ultrasound Specialist

Coordinator of the Iatu sensu Post Graduation Course “The Face Design”, Instituto Lapidare, Brazil

Current Secretary of Dermatologic Community at AIUM (American Institute of Ultrasound in Medicine)

In this lecture, we will learn how to recognize an arterial occlusion after filler injection, associating the patient’s clinical signs with ultrasound findings. In addition, we will cover an ultrasound guided hyaluronidase injection and its indications, facing a impeding necrosis after filler. Also, we will learn how to manage hyaluronidase, its dilution and specific doses depending on the affected region.

Saturday 4 November 2023, 11:30-12:20
Scientific Session 8 – Ultrasound in skin surgery
PRE-SURGICAL MAPPING IN SKIN CANCER

Diana Crisan

Clinic of Dermatology and Allergology, University Hospital Ulm, Germany

High-frequency ultrasound (HFUS) is increasingly being used in dermatology for the assessment of benign and malignant skin lesions, for locoregional staging, monitoring the therapeutic efficacy in various inflammatory skin conditions, and patient follow-up. One field, which significantly benefits from performant imaging techniques such as US is dermatologic surgery. In the field of skin cancer surgery, US at frequencies above 15 MHz was shown to provide significant and objective information regarding tumor depth, lateral extension and vascularity degree, showing a good degree of correlation to histological parameters, enabling dermatosurgeons to preoperatively better demarcate tumor involvement, thus reducing the size of surgical defects and choosing the most appropriate therapeutic approach. Dermatologic surgeons are also often confronted with challenging large tumors, where preoperative ultrasound permits an accurate visualization of potential neurovascular, muscular, cartilaginous, or bone involvement; this knowledge may enable clinicians to identify patients who are no longer candidates for standard micrographic surgery, but rather require immunooncological and/or radiation therapies. In this presentation, we discuss the increasing significance of US in the field of skin cancer surgery, as well as the spectrum of cutaneous pathology where sonography can aid in the preoperative setting to provide a better counseling to our patients, a more individualized surgical planning and improved surgical results while sparing unnecessary surgical interventions and increasing patients' compliance.

Saturday 4 November 2023, 11:30-12:20

Scientific Session 8 – Ultrasound in skin surgery

MELANOMA: THE LOCOREGIONAL STAGING

Orlando Catalano

Department of Radiology, Varelli Diagnostic Institute, Naples, Italy

Cutaneous melanoma is a frequent disease, especially in some geographical area, and its incidence has increased worldwide in the last decades. The lymphatic loco-regional spread usually precedes hematogenous metastasization and its detection influences the surgical management, the sentinel lymph node biopsy procedure, and the survival.

Melanoma metastases are described as satellite metastases when they are found within 2 cm from the primary tumor (or its scar) and as in-transit metastases if the lesion is located at a greater distance, along the lymphatic course toward the lymph node. These lesions may be encountered at the moment of initial surgery for primary melanoma, at the moment of surgical scar enlargement after histological examination of the excised “nevus”, or during patient follow-up. US is more sensitive and specific than palpation in detecting satellite and in-transit lesions. Metastases appear as subcutaneous, hypoechoic nodules, often with very low-level internal echoes owing to the poor beam reflection of the melanin. These lesions show irregular or polycyclic margin and may also carry a posterior enhancement. Larger lesions may show anechoic necrotic areas internally but usually the size is less than 2 cm and consequently the nodules appear as relatively homogeneous. In-transit metastasis can be single or multiple, linearly located along route between the primary lesion and the lymphatic basin. Sometimes thin, hypoechoic bands are recognizable at one or both nodule poles, indicating dilated lymphatic ducts filled with tumor cells. Flow signals are encountered in up to 70% of metastatic lesions, especially in larger ones.

Lymph node metastasis may be preceded by or may be combined with satellite and in-transit metastasis. In other cases, they represent the first spreading site from the primary lesion. Melanoma diffusion to the lymph node basin frequently follows an unpredictable course, especially when the primary tumor is located in the trunk. Additionally, it should be noted that, although rarely, the disease may involve the so called interval nodes, which are located in many individuals along the lymphatic course toward the regional lymph node station. Typical examples of interval nodes metastasis include metastasis to epitrochlear, popliteal, and areolar lymph nodes. True regional lymph nodes inguinal, axillary, and neck basin according to the primary site. If compared to the physical examination, US has a similar specificity but a greater sensitivity in detecting metastatic lymph nodes. US is particularly useful in detecting non-enlarged, metastatic lymph nodes and partially metastatic lymph nodes, although overlooking micrometastasis. Typical metastatic lymph node shows a round or a broad oval shape (longitudinal-transverse diameter ratio <2), with macrolobulated or microlobulated borders and with a complete loss of the internal echoic hilum (i.e., diffuse node hypoechoogenicity) or with a partial loss of the hilum (i.e., diffuse and eventually asymmetric cortical thickening). Color-Doppler imaging demonstrates loss of normal central (hilar) vascularization with multiple peripheral (capsular) vessels penetrating the nodal cortex and eventually spreading chaotically toward the inner portions of the lymph node. In most cases, metastatic lymphadenopathies due to melanoma show some kind of vascularization at color-Doppler and power-Doppler assessment, although to a lesser degree than in the case of lymphadenopathies due to other primary tumors. Color Doppler may be helpful in differentiation the metastatic lymph node from other occurrences, such as reactive lymph node enlargement, cutaneous cysts, and fluid collections (hematoma, seroma, lymphocele). Current equipment allows recognition of very small tumor foci. Melanoma spread to the lymph node starts as single or multiple hypoechoic foci within the periphery of a still small and still oval lymph node. These foci progressively enlarge and compress the normal echoic hilum, till the entire lymph node becomes hypoechoic.

Saturday 4 November 2023, 12:25-13:30
Scientific Session 9 – Follicular and nails diseases
ULTRASOUND IN FOLLICULAR AND SEBACEOUS GLANDS
CONDITIONS

Ximena Wortsman

Institute for Diagnostic Imaging and Research of the Skin and Soft Tissues, Santiago, Chile

Department of Dermatology, Universidad de Chile, Santiago, Chile

Department of Dermatology, Pontificia Universidad de Chile, Santiago, Chile.

In this lecture, we will review the capability of ultrasound to detect abnormalities in the hair follicles and sebaceous glands. Inflammatory conditions and some benign cutaneous tumors that involve these structures will be discussed.

Saturday 4 November 2023, 12:25-13:30
Scientific Session 9 – Follicular and nails diseases
ACNE VULGARIS: HOW CAN ULTRASOUND HELP?

Dr. Claudia Gonzalez

Radiologist Rosario University, Bogotá DC, Colombia Vice chair of the Dermatologic Ultrasound Community and Member at the American Institute of Ultrasound in Medicine (AIUM Leadership Dermatology; www.aium.org. Fellow MSK Ultrasound Catoly University of Murcia, Spain. Private Practice. Highly Specialized Center for Ultrasound . Bogotá DC, Colombia

Acne vulgaris is a very common entity, it predominantly affects adolescents, it has a high impact on the self-esteem of the affected people and even when its diagnosis is eminently clinical, through high-resolution ultrasound it is possible to identify hidden lesions such as pseudo cysts in the deep dermis or presence of hypodermic fistulas that can clinically manifest only as nodules. Through Doppler- Duplex color analysis is possible to detect signs of inflammatory activity of the disease. This information provided by high-resolution ultrasound allows to modify the therapeutic behavior of patients by switching to systemic treatments or more appropriate behaviors that reduce the possibility of scar changes and facial sequelae due to chronicity and inadequate management of the disease. High resolution ultrasound also allows to make a differential diagnosis with entities that can simulate acne vulgaris.

Saturday 4 November 2023, 12:25-13:30
Scientific Session 9 – Follicular and nails diseases
ALOPECIAS: DIAGNOSIS AND MONITORING

Dr Fernando Alfaqeme

Dermatologist

Dermatology service Hospital Puerta de Hierro Majadahonda

Alopecia, a term encompassing various forms of hair loss, poses diagnostic challenges due to its multifactorial etiology and diverse clinical presentations. Conventional diagnostic methods, such as clinical examination and histopathology, may be limited in providing a comprehensive understanding of the underlying causes and progression of alopecia. In recent years, ultrasound imaging has emerged as a promising non-invasive tool for evaluating the scalp and hair follicles in patients with alopecia.

This abstract presents an overview of the current research and clinical applications of ultrasound in the assessment of alopecia. Ultrasound offers the advantage of visualizing the scalp's anatomy, including the thickness and integrity of the epidermis, dermis, and subcutaneous tissue. Additionally, it can assess hair follicle density, size, and vascularity, providing valuable information for diagnosing and monitoring different types of alopecia.

In conclusion, ultrasound imaging has emerged as a valuable diagnostic and therapeutic tool in the evaluation of alopecia. Its non-invasive nature, ability to provide detailed anatomical and functional information, and potential for guiding minimally invasive treatments make it a promising adjunct in the management of patients with various forms of hair loss. Further research is needed to refine its diagnostic accuracy and expand its applications in the field of trichology and dermatology.

Saturday 4 November 2023, 12:25-13:30
Scientific Session 9 – Follicular and nails diseases
ULTRASOUND IN COMMON NAIL PATHOLOGIES

Ximena Wortsman

Institute for Diagnostic Imaging and Research of the Skin and Soft Tissues, Santiago, Chile

Department of Dermatology, Universidad de Chile, Santiago, Chile

Department of Dermatology, Pontificia Universidad de Chile, Santiago, Chile.

We will review the most frequent nail conditions that are sent to the ultrasound examination. This will include tumors, inflammatory conditions, and growth abnormalities. Clinical, ultrasonographic and histological correlations will illustrate the presentation.

Oral Abstracts

O1 - ADVANTAGES OF ULTRA-HIGH RESOLUTION ULTRASOUND-GUIDED BIOPSY OF LABIAL SALIVARY GLANDS IN PRIMARY SJÖGREN'S DISEASE AND IMPACT ON LYMPHOPROLIFERATIVE LESIONS DETECTION

Giovanni Fulvio¹, Rossana Izzetti², Francesco Ferro³, Silvia Fonzetti³, Gaetano La Rocca³, Inmaculada Concepción Navarro García³, Valentina Donati², Marta Mosca³, Chiara Baldini⁴

¹University of Pisa, Department of Clinical and Experimental Medicine - Rheumatology Unit, Pisa, Italy

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⁴University of Pisa, -, Italy

Purpose: To assess the superiority of UHFUS-guided (Ultra-High Frequency Ultrasound-guided) Labial salivary gland (LSG) biopsy over non-UHFUS-guided LSG biopsy, particularly in tissue sampling (i.e., biopsy adequacy, glandular surface area), identification of typical histological assessment of SS-related inflammation (number of foci, focus score, ectopic lymphoid structure), detection of atypical or lymphoproliferative lesions.

Methods: Consecutive UHFUS-guided (US-g) LSG biopsies of pSS patients were read according to a standardized protocol by an expert pathologist (Jan 2021 to Jan 2022). The same reading protocol was used to re-read consecutive non-UHFUS guided (nUS-g) LSG biopsies (Jan 2017-Jan 2018). The following histological findings were assessed: biopsy adequacy, surface area, number of foci, focus score, ectopic germinal center structure, atypical and lymphoproliferative lesions. UHFUS of LSG was performed by using VEVO MD, equipped with a 70 MHz probe, scanning first the central compartment of the inferior lip, and then both peripheral compartments. UHFUS imaging was used to locate the LSG with the worst inhomogeneity for the US-guided biopsy.

Results: 100 pSS patients, fulfilling ACR/EULAR 2016 criteria, were included in the study: 43 patients from January 2017 to January 2018 underwent non UHFUS-guided LSG biopsy (nUS-g patients), 57 patients from January 2021 to January 2022 underwent UHFUS-guided LSG biopsy (US-g patients). Key features were equally distributed between the two groups (age, sex, ESSDAI, ESSPRI, complement levels, rheumatoid factor, cryoglobulins, cytopenia, Schirmer's test and unstimulated salivary flow rate). Biopsy adequacy of the LSG biopsy was higher in US-g patients (52/57, 91.2%) than in nUS-g patients (28/43, 65.11%) [p-value 0.002]; likewise, medium total area was higher in the first group (6.5±3.95 vs 8.93±4.15) [p-value 0.005]. LSG biopsy features were differently distributed between the two groups: ectopic lymphoid structures (ELS) were 2.35±2.98 in US-g patients and 1.00±1.37 in nUS-g patients [p-value 0.009]; the number of foci and focus score, similarly, were higher in US-g patients although did not reach statistical significance (respectively 2.78±2.97 vs 3.75±3.27 [p-value 0.135] and 1.44±1.62 vs 2.08±2.36 [p-value 0.175]). Notably, atypical or lymphoproliferative lesions were detected in 5/57 (8.77%) patients undergoing LSG UHFUS-guided biopsy and in none of the nUS-g patients [p-value 0.044]. Atypical or lymphoproliferative lesions, compared to "typical" inflammatory infiltrate, presented specific suspicious features: very hypoechoic areas and high perilesional Doppler signal (Fig. 1-2).

Conclusions: US-g LSG biopsies, compared to nUS-g biopsies, improved tissue sampling and ELS recognition. In addition, US-g LSG biopsies may detect atypical and lymphoproliferative lesions in pSS patients at diagnosis.

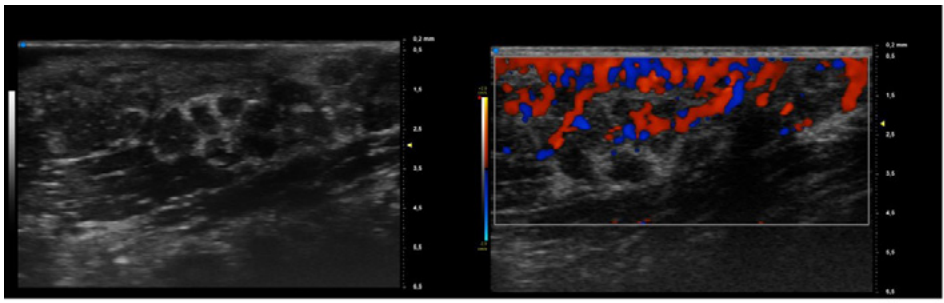


Fig.1 Atypical Inflammatory Lesion of labial salivary glands, diffuse pattern, grey scale

Fig.2 Atypical Inflammatory Lesion of Fig.1, color doppler

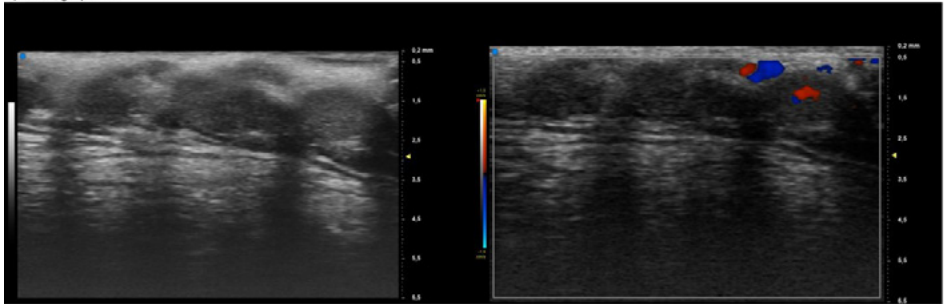


Fig.3 Normal labial salivary glands, grey scale

Fig.4 Labial salivary glands of Fig.3, color doppler

O2- THE ROLE OF ULTRA-HIGH FREQUENCY ULTRASOUND IN PREOPERATIVE EVALUATION OF LYMPHEDEMA PATIENTS

Alberto Bolletta¹, Emanuele Cigna², Davide Di Seclì¹

¹University of Pisa, Department of Translational Research, Italy

²University of Pisa, Department of Translational Research, Italy

Purpose: Indocyanine green lymphography is the gold standard in lymphatic surgery imaging. Ultra-high frequency ultrasound (UHFUS) can be a very useful tool in the preoperative evaluation of these patients, thanks to its high resolution and non-invasiveness. The aim of this preliminary study is to compare UHFUS with conventional high-frequency ultrasound (CHFUS) in the evaluation of lymphatic vessels in patients affected by breast cancer related lymphedema (BCRL).

Methods: Twelve patients affected by upper limb BCRL were enrolled in this study. Two imaging methods were used: ultra-high frequency ultrasound with a 70 MHz linear array transducer and conventional high-frequency ultrasound with a 22MHz linear array transducer. All patients were also evaluated with indocyanine green lymphography. Each patient underwent US evaluation in 3 segments of the upper limb (distal third of the forearm, proximal third of the forearm and distal third of the arm). In each section both CHFUS and UHFUS were used to determine the number of lymphatics and their diameter. When the UHFUS was used the higher resolution allowed to also determine the diameter of the lumen, and the wall thickness.

Results: The analysis was conducted on twelve women affected by BCRL. Regarding the sections analyzed (from distal to proximal) the mean number of lymphatic vessels found with UHFUS was respectively 2.79 ± 0.52 , 2.24 ± 0.38 and 1.97 ± 0.37 . When the CHFUS evaluation was performed the mean number of lymphatic vessels found per section was, respectively, 1.34 ± 0.42 , 1.12 ± 0.32 , 1.65 ± 0.31 . In terms of diameter the lymphatic vessels studied with UHFUS presented a mean diameter per section of 0.314 ± 0.004 , 0.304 ± 0.006 , 0.402 ± 0.007 . The mean diameter per section found with CHFUS was 0.371 ± 0.002 , 0.379 ± 0.002 , 0.449 ± 0.003 . The mean diameter of the lumen of vessels analyzed by UHFUS was, respectively 0.185 ± 0.036 , 0.176 ± 0.048 and 0.169 ± 0.029 . The mean wall thickness per section was 0.071 ± 0.023 , 0.080 ± 0.011 and 0.075 ± 0.08 respectively.

Conclusions: The results obtained demonstrated how UHFUS allows us to visualize more lymphatic vessels when compared with CHFUS but also smaller vessels. Moreover, its higher resolution allows to obtain additional information essential to plan surgical treatment as wall thickness and lumen diameter of the vessels are key elements to determine its status and whether it can be targeted surgically. Standardized training is necessary to enhance the use of UHFUS as a standard preoperative evaluation in lymphedema patients.

O3 - STEATOCYSTOMAS MULTIPLEX IN PATIENTS WITH HIDRADENITIS SUPPURATIVA: THE RELEVANT ROLE OF ULTRASONOGRAPHY

Giulia Nunziati¹, Antonella Di Cesare², Elia Rosi¹, Ilaria Scandagli¹, Gianmarco Silvi¹, Prisca Guerra¹, Francesca Prignano¹

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Purpose: Our aim is to elucidate the ultrasonographic (US) features that aid in distinguishing between cutaneous abscesses and steatocystomas in order to emphasize the importance of US examination as a non-invasive diagnostic tool in the accurate diagnostic assessment of patients affected by hidradenitis suppurativa (HS) and/or steatocystoma multiplex/ steatocystoma multiplex suppurativa.

Methods: We collected US images of lesions clinically consistent with either abscesses or steatocystomas in patients affected by HS and/or steatocystoma multiplex attending our Outpatient clinic. Since abscess and steatocystoma both present as subcutaneous nodules and can share overlapping clinical features, to categorize a lesion as either an abscess or a steatocystoma, we focused on the following clinical features: (1) presence or absence of pain, (2) consistence of the lesion, (3) presence or absence of swelling and/or erythema, (4) presence or absence of localized warmth. Abscesses usually present as painful, tender, swollen, erythematous lump and the area around these lesions is often warmer than the surrounding skin. In contrast, steatocystomas present as painless, firm, mobile nodules or papules of varying size without either erythema or swelling or localized warmth. Based on these features, we collected 100 clinical and US pictures of cutaneous lesions suspected either for abscesses or steatocystomas. Following the collection of US images, a detailed comparative analysis was performed to discern any sonographic differentiating characteristic between these two types of lesions.

Results: US imaging revealed precise characteristics for each condition in terms of echogenicity, structural features and Power Doppler signal. WE found that 81 lesions could be categorized as abscesses while 19 lesions could be referred to steatocystomas. Cutaneous abscesses exhibited heterogeneous echogenicity: in most cases, they appeared as fluid-filled cavities with a hypoechoic or anechoic centre and an echogenic wall and they often showed hyper-echoic internal debris or septations, which are indicative of purulent material. In most cases, these lesions showed a roughly rounded shape and poorly defined borders. Fifty-eight images out of 81 abscesses also displayed a prominent Power Doppler signal due to an increased blood flow in the surrounding tissue. On the other hand, steatocystomas appeared as well-defined, round, or oval hypo-anechoic cystic structures with a more evident posterior acoustic enhancement in comparison with abscesses; in this case, there were no traces of debris or other hyper-echoic structures in the centre of the lesions. All 19 lesions diagnosed as steatocystomas showed well-defined, smooth, and thin walls without the irregularity seen in abscesses. Seventeen steatocystomas were located in the dermis, while two steatocystomas exhibited a deeper localization, in the subcutaneous tissue. Power Doppler signal was minimal or totally absent in almost all lesions; only one lesion showed a positive power doppler signal, suggesting a diagnosis of steatocystoma multiplex suppurativa.

Conclusions: US plays a pivotal role in differentiating between abscesses and steatocystomas by providing visual information about the internal characteristics and features of these lesions. As previously described in the literature, the key distinguishing features include echogenicity, lesion shape, content and vascularity. Therefore, we suggest US examination as a useful tool to assist dermatologists in making a more precise diagnosis, facilitating prompt and tailored management.

O4 - HIGH-FREQUENCY ULTRASOUND FEATURES OF PERIUNGUAL SUPERFICIAL ACRAL FIBROMYXOMAS

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Purpose: Superficial acral fibromyxomas (SAF) are rare benign myxomatous tumors that primarily affect the subungual or periungual regions. The aim of our study is the identification of SAF (Superficial Acral Fibromyxoma) main ultrasound features in order to provide detailed information about the tumor's location, size, and relationship with adjacent structures, aiding in surgical planning and ensuring complete excision.

Methods: We present the ultrasound features of six pathologically confirmed periungual SAF cases on the big toes (4/6) and 3rd toes (2/6) of two females and four males, ranging in age from 5 months to 58 years. On clinical examination, all cases presented as dome-shaped, flesh-colored solitary lesions that gradually distorted the architecture of the lateral folds (5/6 cases) or the hyponychium (1/6 case), often lifting the corresponding nail plate.

Results: B-Mode greyscale ultrasound revealed a mixed echotexture with a hypoechoic core having ill-defined or slightly lobulated borders, occasionally surrounded by a hypo/anechoic halo. In one-third of the cases, we found remodeling of the bony margin of the distal phalanx without erosion. The hypoechoic area was mostly localized to the central part of the tumor. Power Doppler Imaging (PD) showed low-flow arterial and venous vessels concentrated predominantly within the central hypoechoic core. In three out of six cases, the vascular signal was barely detectable, likely due to vessels with flows below the detection threshold of 2 cm/sec. All SAF cases underwent radical surgical excision, with one case showing positive margins and recurrence after 8 months. No further relapses were observed during the 2-year follow-up.

Conclusions: In our cases, we observed a heterogeneous echotexture characterized by a fully hypoechoic structure with varying vascularity. This finding can be attributed to non-encapsulated dermal nodules composed of spindle to stellate-shaped cells arranged in a storiform pattern. The hypo/anechoic halo surrounding the tumor likely corresponds to the myxoid matrix, which stained positive for Alcian Blue. Hence, we believe that these hypo/anechoic areas reflect myxomatous changes rather than tissue necrosis. Furthermore, the tumor's vascular network and increased presence of mast cells can explain our PD findings and support the histological diagnosis of SAF over cellular digital fibroma. Presurgical mapping of SAF with ultrasound is vital to assess the tumor's extent and prevent recurrence. Identifying tumor boundaries preoperatively helps surgeons optimize their approach and minimize recurrence risk. Incomplete tumor excision with positive margins can lead to persistent or recurrent cases in up to 20% of instances, underscoring the importance of achieving complete excision for preventing recurrence.

Conflict of Interest: None to declare.

O5 - DOT IN A CIRCLE, THE CHARACTERISTIC ULTRASOUND APPEARANCE OF MYCETOMA

Stefano Bighetti¹, Luca Bettolini¹, Marina Venturini¹, Piergiacomo Calzavara-Pinton¹, Vincenzo Maione¹

¹*University of Brescia and Asst Spedali Civili Hospital, Dermatology, Brescia, Italy*

The Madura foot, also known as mycetoma, is a chronic and progressively advancing infection of the cutaneous and subcutaneous tissues, characterized by a granulomatous reaction to fungal hyphae (eumycetoma) or bacteria (actinomycetoma). It clinically presents as nodules, sinuses, and interconnected fistulas. These features can be assessed using various diagnostic methods; however, ultrasonography offers several advantages over other non-invasive methods: it is a rapid and cost-effective technique that allows for early disease diagnosis by revealing a distinctive pattern known as the “dot in a circle,” which correlates with magnetic resonance imaging findings and the presence of grains, a hallmark of the condition. We report our experience in diagnosing a case of Madura’s foot with ultrasound-guided sample collection performed in a dermatological setting.

This method, readily available to dermatologists, ensures swift sample collection for cultures, eliminating the need for multiple biopsies or exploratory surgical procedures.

No conflict of interest.

P1 - NEW FRONTIERS IN THE ASSESSMENT AND MONITORING OF NAIL PSORIASIS: THE ROLE OF ULTRA-HIGH FREQUENCY ULTRASOUND

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⁴University of Pisa, University of Pisa, Department of Dermatology, Pisa, Italy

⁵Statistical Support to Clinical Trials Department, University of Pisa, Pisa, Italy

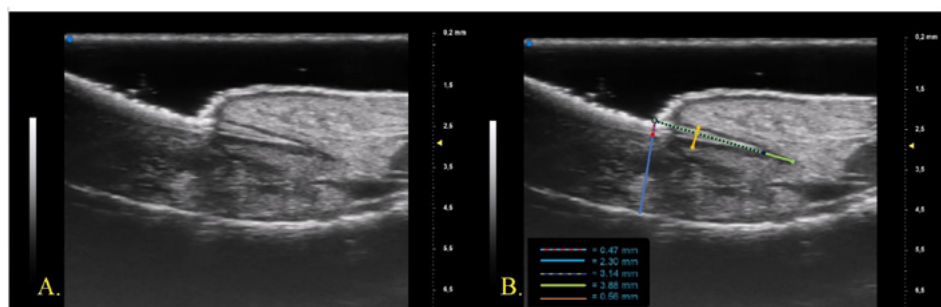
⁶University of Pisa, Dermatology, Pisa, Italy

⁷Dept. of Dermatology, University of Pisa, University of Pisa, Dermatology, Pisa, Italy

Purpose: Psoriatic onychopathy is one of the clinical presentations of psoriasis and a well-known risk factor for the development of psoriatic arthritis. High-Frequency Ultrasound (HFUS >20 mhz) has recently been used to evaluate the nail apparatus of healthy and psoriatic subjects. The aim of our study was to detect by means of Ultra-High Frequency Ultrasound (UHFUS 70-100 mhz) alterations of the nail bed and matrix in patients with psoriatic onychopathy and to monitor these parameters during the treatment with monoclonal antibody (mab).

Methods: We enrolled 10 patients with psoriatic onychopathy and naive to previous biologic therapies. Patients were evaluated at baseline, after 1 month and after 3 months from the beginning of mab therapy by a complete clinical assessment and US evaluation. An UHFUS examination with a 70 mhz probe was performed on the thumbnail (I), the index fingernail (II) and the nail with greater clinical impairment (W). The following measurements were analyzed: nail plate thickness (A), nail bed thickness (B), nail insertion length (C), nail matrix length (D) and nail matrix thickness (E) (Figure 1).

Figure 1. UHFUS structural features measured: Nail plate thickness, red-blue dotted line (measure A), Nail bed thickness, blue line (measure B), Nail plate insertion, purple-green dotted line (measure C), Nail matrix length, green line (measure D), Nail matrix thickness, orange line (measure E).



Results: Among the various parameters analyzed, some measures showed statistically significant decrease with p-value <0.05 (t0 WA=0.52 mm vs. T2 WA=0.42 mm; t0 WB=2.8 mm vs. T2wb=2.4 mm; t0 WE=0.76 mm vs. T2 WE=0.64 mm; t0 IIA=0.49 mm vs. T2 IIA=0.39 mm).

Conclusions: In conclusion, UHFUS could represent a viable imaging technique for the real time evaluation and monitoring of psoriatic onychopathy, thus supporting the clinical parameters and revealing any subclinical sign of early drug response.

P2 - ULTRA-HIGH FREQUENCY ULTRASOUND (UHFUS) ASSESSMENT OF BARRIER FUNCTION IN MODERATE-TO-SEVERE ATOPIC DERMATITIS DURING DUPILUMAB TREATMENT

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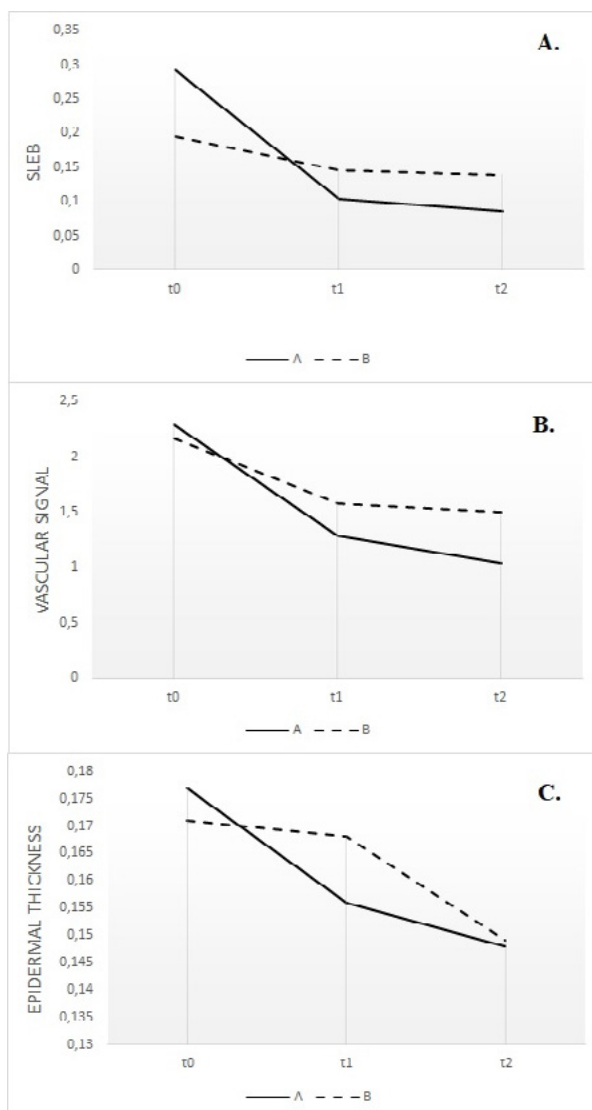
⁷Dept. of Dermatology, University of Pisa, University of Pisa, Dermatology, Pisa, Italy

Purpose: Atopic dermatitis (AD) is a chronic multifactorial inflammatory disease characterized by intense itching and inflammatory eczematous lesions. Biological disease-modifying drugs, such as Dupilumab are recommended for patients with moderate-to-severe AD, refractory to systemic immunosuppressive therapies. Disease monitoring is performed by clinical scores. Since 1970, however, the use of ultrasound and particularly high frequency ultrasound (HFUS) has identified alterations in dermal echogenicity, called Subepidermal Low-Echogenic Band (SLEB), that correlates with disease severity and response to treatment.

Methods: We enrolled 18 patients with moderate-to-severe AD divided in 2 groups:12 patients in dupilumab treatment (Group A) and 6 patients in standard treatment, from February 2019 to November 2019. We performed Ultra High Frequency Ultrasound (UHFUS) evaluation of lesional and non-lesional skin, focusing on SLEB average thicknesses measurement, epi-dermal thickness and vascular signal in correlation with objective disease scores (EASI, IGA), patient's reported scores (Sleep Quality NRS and Itch NRS), TEWL and corneometry at baseline (T0), after 1 month (T1) and after 2 months (T2).

Results: SLEB average thickness measurement, vascular signal and epidermal thickness showed statistically significant reduction in lesional skin of biological treatment group and not significant reduction in non-lesional skin of both groups. In the lesional skin of the standard treatment group only epidermal thickness showed statistically significant reduction (Figure 1)

Figure 1. Subepidermal Low-Echogenic Band (SLEB) reduction in lesional skin of the two groups, evaluated at baseline (t0), after 1 month (t1) and after 2 months (t2) (a); Vascular signal in lesional skin of the two groups, evaluated at baseline (t0), after 1 month (t1) and after 2 months (t2) (b); Epidermal thickness in lesional skin of the two groups, evaluated at baseline (t0), after 1 month (t1) and after 2 months (t2) (c)



Conclusions: Our study demonstrates that SLEB measurement, vascular signals and epidermal thickness could be used as objective parameters in monitoring AD treatment response. While the presence of SLEB in non-lesional skin could be used as a marker of subclinical inflammation and could predict development of clinical lesions, suggesting a proactive therapy. Further follow up and research are needed to clarify the association of SLEB decrease/disappearance with a reduction of flares/prolongment of disease remission time.

P3 - ULTRA-HIGH-FREQUENCY ULTRASONOGRAPHY OF LABIAL GLANDS IN PEDIATRIC SJÖGREN'S DISEASE: A PRELIMINARY STUDY

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Purpose: Sjögren's disease (SD) is a chronic autoimmune disease primarily affecting lacrimal and salivary glands. The diagnosis of pediatric SD mostly relies on clinical suspect, resulting in a significant diagnostic delay. Recently, ultrahigh-frequency ultrasound (UHFUS) of labial glands has been proposed as a diagnostic method in adults with suspected SD. Until now, there have been no studies about UHFUS in pediatric diagnostic work-up. The aim of the study was to evaluate the potential role of UHFUS of minor salivary glands in pediatric SD.

Methods: Consecutive pediatric patients with a diagnosis of pediatric SD seen at AOU Meyer IRCCS were evaluated. Intraoral UHFUS scan of the lip mucosa was performed with Vevo MD equipment, using a 70 MHz probe with a standardized protocol and the images were independently reviewed by two operators. Lip salivary glands were assessed by using a four-grade semiquantitative scoring system for parenchymal alteration and vascularization.

Results: Twelve patients were included. When applying UHFUS to this cohort of patients, all patients showed a UHFUS grade of ≥ 1 with 8/12 showing a mild glandular alteration (i.e., grade 1), 2/12 a moderate glandular alteration (i.e., grade 2) and finally 2/12 a severe glandular alteration (i.e., grade 3). Moderate intraglandular vascularization was seen in 9/12, with only 3/12 showing mild intraglandular vascularization. Due to limited size of the sample, the relationship between histological findings, autoantibodies status and UHFUS grade could not be performed.

Conclusions: This preliminary study seems to report UHFUS as feasibility technique to identify salivary gland alterations in children with a clinical suspect of SD.

P4 - ACROANGIODERMATITIS WITH ATYPICAL PRESENTATION: DIAGNOSTIC IMAGING WITH HIGH FREQUENCY ULTRASOUND

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Introduction. Acroangiokeratosis (AAD) is a rare benign vascular condition of unknown origin, mainly of the extremities. Four AAD variants have been described. The Stewart-Bluefarb syndrome, characterized by chronic arteriovenous malformations, the Mali type, accompanying stasis dermatitis, a third variant associated with the first gestation and a type accompanying arteriovenous shunts in patients with chronic kidney failure.

Purpose. We aimed to assess the role of high frequency ultrasound (HFUS) for the diagnosis of an atypical presentation of AAD Mali type.

Methods. We reported the case of a 78-year-old patient with an ulcerative lesion on the right leg, in the context of a large pigmented greyish area with clear-cut margins, developed about 9 years earlier after a local injury. The lesion was complicated by erysipelas and was not associated with chronic venous failure or arteriovenous malformations. Diagnosis was confirmed by HFUS, using a compact linear probe that generates frequencies of 24-30 MHz.

Results. The clinical presentation and the sonographic features of the lesion were described. HFUS at 28 MHz was performed at proximal lesion sites, revealing an anechoic layer in the entire dermis corresponding to multiple dilated vascular lacunae. Hyperechoic fibrotic areas in the dermis and upper hypodermis were also detected. Power doppler HFUS at 26 MHz performed at the periphery of the lesion allowed to visualize an abnormal vascular flow, showing connections with hypodermal vascular plexuses.

Conclusions. HFUS is a reliable noninvasive technique and could represent a possible adjunct tool in the medical practice for the identification of AAD, helping in the differential's diagnosis.

Conflict of Interest: none

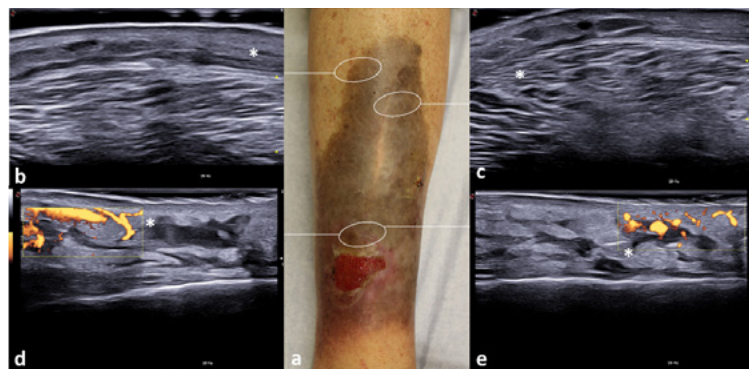


Figure 1

Legend: A pigmented erythematous/greyish area of 33 x 17 cm of the pre-tibial and lateral skin surface of the right leg, with an erosion of 4.5 x 7 cm in the distal portion (fig. 1a); High frequency ultrasound at 28 MHz reveals an anechoic layer corresponding to multiple dilated vascular lacunae structures in the whole dermis and hyperechoic fibrotic areas in the dermis and upper hypodermis. The average thickness of pathologic dermis was 1.3cm (fig. 1b, 1c); Power doppler high frequency ultrasound at 26 Hz allows to visualize an abnormal vascular flow and the connection with hypodermal vascular plexuses (fig. 1d, 1e).

P5 - COMPARATIVE UHFUS ANALYSIS OF INFLAMMATORY AND NON-INFLAMMATORY PHASES IN PYODERMA GANGRENOSUM AND OTHER WOUND TYPES

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Purpose: Pyoderma gangrenosum (PG) is a neutrophilic dermatological disease of unknown etiology. For initiating proper therapy, an accurate differential diagnosis and a distinction between the inflammatory and non-inflammatory phases are fundamental.

Methods: In our study, we compared ultra-high frequency ultrasound (UHFUS) images of patients with PG in the inflammatory and non-inflammatory phases with UHFUS findings of venous leg ulcers (VLU) and acute (<30 days) injuries (AI). We enrolled 45 patients, including 15 with PG, 15 with VLU, and 15 with acute wounds (within 30 days). For each patient, we acquired three B-MODE and C-MODE UHFUS clips. For PG patients, we divided the lesions into inflammatory and non-inflammatory phases based on clinical signs and painful symptoms (VAS scale). UHFUS characteristics were evaluated using a 70 MHz probe (Vevo MD[®], FUJIFILM, VisualSonics). For each clip, the same morphological and quantitative parameters were assessed in term of vascularity and echogenicity.

Results: We obtained statistically significant differences among the groups. In the inflammatory PG group, we detected the presence of characteristic microvascular morphology and the presence of hyperechogenic oval structures. These findings were less present in VLUs and AIs. These results confirmed that PG in the inflammatory phase presents substantial morphological differences compared to VLU and AI.

Conclusions: These findings can be useful for enhancing diagnostic and therapeutic algorithms through the utilization of non-invasive imaging techniques.

P6 - CLINICAL AND ULTRASOUND EVALUATION OF PEDIATRIC PATIENTS AFFECTED BY HIDRADENITIS SUPPURATIVA TREATED WITH ADALIMUMAB

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Purpose: Hidradenitis Suppurativa (HS) usually appears in young adult, mostly in female. Nevertheless, it has been described rarely in different subgroups, such as postmenopausal women or children. Very few data on children or pediatric onset of HS are available. However, less than 2 percent of patients with HS are under the age of 11. The age of onset of HS corresponds to the peak of androgen synthesis and the involved enzymatic activity. The most recent literature data indicate a prevalence in children and adolescents of 0.06. Our aim is describing preliminary results of efficacy and safety of Adalimumab in pediatric patients affected by HS through clinical and ultrasound evaluation.

Methods: This is a retrospective analysis among HS patients aged less than 18 years old. The period of observation was 36 weeks. The severity of the disease was assessed clinically using the HS-PGA clinical score and via ultrasonography, using the same score adapted for the ultrasonographic investigation (US HS-PGA). A 14-20 MHz ultrasound transducer equipped with power and color Doppler (MyLabTM One, Esaote, Genoa, Italy) was used for the study. Children DLQI (CDLQI) has been evaluated in order to assess the pain symptoms. Data were registered at time 0 (T0: before starting treatment) and after 36 weeks (T36) and analyzed, using Student's *t* test.

Results: This is retrospective study among 30 patients (19 Females – 11 Males) (mean age: $15,41 \pm 1,86$; mean age of onset: $12,65 \pm 1,20$). HS affected one to two body areas in 72% of patients. The average score between HS-PGA and US HS-PGA was $2.58 \pm 2,10$ and $2.927 \pm 2,13$, respectively at time T0. At time T36 it has been registered a great improvement, since HS-PGA and US HS-PGA was $1.48 \pm 1,60$ and $1.764 \pm 1,50$ respectively ($p < 0,05$). CDLQI at week 0 were $16,79 \pm 3,10$ while at week 36 were $7,82 \pm 1,50$ ($p < 0,05$). One patient dropped out at week 16 while 2 patients reported tonsillitis, but they did not stop Adalimumab.

Conclusions: This retrospective analysis demonstrates through clinical and ultrasonographic evaluations how adalimumab is a valid therapeutic alternative in patients aged less than 18 years old suffering from HS. At the same time, we agree with what has already been observed for adults, namely that clinical evaluation alone underestimates the actual severity measured by ultrasound.

Conflict of Interest: No conflict of interest to declare.

P7 - CLINICAL AND ULTRASONOGRAPHIC STUDY OF HIDRADENITIS PATIENTS IN A REAL LIFE SETTING: THE EXPERIENCE OF A SINGLE CENTER

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Purpose: We performed a clinic and ultrasonographic (US) study on hidradenitis suppurativa (HS) patients in order to increase diagnostic accuracy, staging and monitoring of HS.

Methods: Patients affected with HS attending our outpatient clinic during the last 5 years underwent clinical and US examination during first and, when available, follow-up visits. Demographic, clinical and US data were collected for each patient at baseline and during medical treatment. US evaluation of the lesions was performed also for pre-surgical assessment. Data were retrospectively analyzed.

Results: Overall, complete clinical and US data at baseline visit were available for 150 patients. We found that clinical staging (both Hurley and HS-PGA) was under-estimated compared to US staging (SOS-HS) in almost 20% of cases. US assessment at baseline was relevant for the therapeutic decisional process and follow-up. Steatocystomas, and steatocystoma multiplex suppurativa were the more frequent differential diagnosis, at clinical and US level. The ability of US to detect subclinical extension of HS into perilesional skin such as hidden tunnels, or to visualize vascularization of fluid collections and fistulae with color doppler, as activity index, as well as to calculate deepness and dimensions of lesions were the most relevant differences compared to mere clinical evaluation. The time to perform US ranged from 5 to 30 minutes according to severity of disease. US examination was usually well tolerated by patients, increasing patients' satisfaction.

Conclusion: Although dermatologist have been pioneers in the use of other tools than naked eyes during patients' clinical examination, starting from magnifying glass to sophisticated dermatoscopes to confocal microscopy, the use of ultrasonography (US) has been mainly restricted to areas of pure investigation and demanded to other specialties. In our opinion and according to the results of our study, this approach should be revised. Actually, although HS diagnosis still mainly relies on clinical features, staging and treatment flow-charts must include US examination, performed directly by experienced and trained dermatologist, during the routine visits.

Conflict of interest: the Authors have no conflict of interest to declare.

P8 - ULTRA-HIGH FREQUENCY ULTRASOUND ASSESSMENT OF PEDIATRIC SKIN LESIONS

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Background: Ultra-high frequency ultrasound (UHFUS) is a new diagnostic technique that can be used also in melanocytic lesions^{1,2,3}. Evidence suggests that UHFUS could be useful in the differential diagnosis between nevus and melanoma, using vascularization as the main parameter^{2,3}.

Materials and Methods: We analyzed 10 children (average age 10.5 years old) come to our unit of Dermatology (University of Pisa). We did a clinical and dermoscopic evaluation of the lesions. Then we performed an UHFUS examination of the lesions even if they didn't show any atyp. We used a 70 MHz probe with B-mode and eco color Doppler for the evaluation of shape, thickness and vascularization.

Results: In 100% of cases, we saw an intense vascularization, particularly on intralesional and sublesional sites.

Conclusions: Vascularization could be a useful parameter for the differential diagnosis between benign and malignant, melanocytic, or non-melanocytic lesions^{1,2,3}. However, pediatric patients are in constant evolution and their skin lesions can constantly grow³. We know that growing lesions can have an increased vascularization, so this parameter can't be applied in pediatric patients.

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P9 - POST SURGICAL COMPLICATIONS OF HIDRADENITIS SUPPURATIVA LESIONS EXPLORED WITH PRESURGICAL ULTRA-HIGH FREQUENCY ULTRASOUND MAPPING AND MANAGED THROUGH THE PRINCIPLES OF HS-TIME: A MONOCENTRIC, RETROSPECTIVE STUDY

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Purpose: Hidradenitis suppurativa (HS) is a chronic inflammatory disease of the hair follicle whose treatment often requires a surgical approach. The aim of our study was to evaluate the post-surgical complications following a new standard of surgical management including a preoperative step with pre-surgical mapping of lesions by Ultra High Frequency ultrasound (UHFUS) with a 70 mhz probe and a postoperative time based on the principles of HS Time-Inflammation/Infection-Moisture-Edges (TIME).

Methods: A single centre retrospective study was conducted by the Department of Dermatology of Pisa, enrolling 26 patients with moderate and severe HS, refractory to previous medical and surgical therapies. All the patients were treated with wide surgical excision of lesions previously explored through a UHFUS evaluation with VEVO MD® (Fujifilm visualsonics, Inc., 2016) using a 48 and a 70 mhz ultrasound probe. After surgery all patients were treated with secondary intention healing following the principles of HS-TIME. For each patient, we assessed the occurrence of early post-surgical complications performing follow-up visits every 6 months after surgery. The occurrence of delayed complications was then assessed in all the patients with an observation time longer than three months (n=23).

Results: There were no reported cases of post-surgical bleeding or hematoma occurrence, while 3/26 (11,5%) patients developed minor surgical site infection. The average severity of pain decreased from Numerical Rating Scale (NRS) of 5,3 immediately after surgery to 1,3 after 4 weeks. The average healing time was 33.3 (16,5- 50,1) days, and only 5/26 (19.2%) patients reported a complete wound healing longer than 6 weeks. Focusing on delayed complications, 1/23 (4,3%) cases of hypertrophic scarring, 2/23 (8,7%) cases of reported dysesthesia and 2/23 (8.7%) cases of clinical relapse were reported. No cases of limited mobility at the surgery site were registered.

Conclusions: We demonstrated the efficacy of a novel surgical protocol including a preoperative US evaluation and a proper postoperative wound management. Even if further prospective studies are needed to validate the observed results, we conclude that the low recurrence rates and post-surgical complications confirmed that our proposed protocol would represent an effective strategy for the management of HS patients eligible for surgical therapy.

P10 - INTRALESIONAL STEROID INJECTIONS TO TARGET SINUS TRACT FIBROSIS IN HIDRADENITIS SUPPURATIVA: RESULTS FROM AN ULTRASOUND-BASED RETROSPECTIVE STUDY

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Purpose: We describe our experience in how to manage hidradenitis suppurativa (HS) fistulas with fibrotic features by ultrasound-guided intralesional steroid injections, instead of using surgical procedures.

Methods: We retrospectively collected data from 13 HS Hurley grade II or III patients, including 10 females and 3 males, with a mean age of 33.1 years. All patients had sinus tract with features of prominent fibrosis in association or not with increased vascularity or tissue edema, corresponding to type II and III according to Ultrasonographic Classification of Fistulous Structures. The degree of fibrosis was assessed through a semiquantitative score ranging 3–0. All cases were unresponsive to local therapy or eventually flared during the systemic treatment with anti-TNF- α agents or systemic antibiotics. The target sinuses were injected with intralesional triamcinolone, for a mean number of 2.5 sessions, and monitored by clinical and sonographic evaluations at follow-up visits, for a mean time of 23 weeks. The number of injections was based on the patient's symptoms (pain, burning, purulent discharge) until the relief of pain or loss of inflammatory features (discharge of pus or blood) was obtained. Dilutions of triamcinolone 40 mg/ml 1: 2 were obtained either with lidocaine 1% or sodium chloride, depending on cases. The maximum amount of injectable triamcinolone was 40 mg. The targets were slowly injected with a 25G needle under ultrasound guidance, performed by a multichanneled ultrasound machine (MyLab One/Touch Ultrasound System Esaote) equipped with a broad bandwidth linear transducer emitting at 8–18 MHz frequencies. After the procedure, the patient was discharged with topical antibiotics to be applied twice daily for the next 3 days. Adverse events, including local hypopigmentation and skin atrophy, were recorded at each visit.

Results: At the end of the follow-up, 9/13 of the treated fistulas showed a marked reduction of fibrotic scarring, and fibrosis was no longer detectable in three of them, whereas four cases did not improve from baseline. Interestingly, 3/4 of the no-responders had target fistulas located on armpits. Overall, seven adverse events were recorded during the study period, including skin atrophy (four cases), transient hypopigmentation (one case), or both (two cases).

Conclusions: We observed that the clinical response to steroid injections is usually achieved within the first two sessions, while nonresponders deserved a higher number of injections due to the lack of clinical improvement or subsequent relapse. The risk to developed sides effects is dose-dependent, caused by the antiproliferative action of triamcinolone on keratinocytes, fibroblast, and melanocytes, resulting in altered collagen metabolism and melanin synthesis. Skin atrophy progressively improved with 4–6 months after ceasing the injections, while hypopigmentation tended to be more persistent. All these skin changes occurred on the groins, possibly due to a minor dermohypodermal thickness compared to armpits. Intralesional triamcinolone is considered the gold standard for the nonsurgical management of hypertrophic and keloid scars, leading to a 50%–100% clearance rate, although burdened with a recurrence averagely of 33% at 1 year, depending on studies. There is growing evidence supporting intralesional steroids in acute HS lesions; however, little data investigate its role in managing chronic HS lesions, mostly mammary fistulas. Our study has the strength to focus on the degree of fibrosis in draining fistulas, since this sonographic parameter was not analyzed separately in the previous studies. We did not measure the total length of draining sinuses due to the lack of extended field-of-view ultrasound imaging

software; also, we believed that intra or perifistular fibrosis could impact the correct sampling of sinus thickness. Lastly, the worse outcome of armpit tracts may be explained by a deeper seating of sinus tracts in this area, characterized by a more represented subcutaneous tissue. As suggested by Martorell et al., dermal fistulas have a higher chance of treatment response.

Conflict of interest: None to declare.

P11 - HIDRADENITIS SUPPURATIVA AS A RARE MANIFESTATION OF ACROMEGALY : CLINICAL AND ULTRASONOGRAPHIC EVALUATION

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Purpose: To present a rare case of a patient with acromegaly and the occurrence of Hidradenitis suppurativa (HS), as well as the discordances between clinical and ultrasonographic assessment of HS along with monitoring the effect of the therapy.

Methods: We present a 38-year-old patient who was hospitalized in our clinic due to the appearance of red painful nodules with purulent discharge initially in the genitofemoral and gluteal region, later spreading to the axillary, chest and abdominal area over a duration of 5 years. During the clinical examination the patient showed clear phenotypic signs of acromegaly - prognathism, frontal cranial hyperplasia, enlarged hands and feet, which according to the patient's medical history, had manifested slightly before the onset of cutaneous symptoms. The diagnosis of hidradenitis suppurativa was confirmed, with subsequent clinical (Hurley Stage 2, IHS4=5) and ultrasonographic assessments (HS-SOS Stage 3, IHS4=11) revealing a discordance in findings.

Results: The microbiology swab isolated *Klebsiella pneumoniae* and treatment with systemic antibiotics (Cephalosporine 2gr q.d. and Metronidazole 500 mg b.i.d i.v., Zn Gluconate 30mg t.i.d, Colhicum disp. 0.5mg b.i.d.) and topical antiseptic solutions was started. A consultation was conducted, and subsequent hospitalization in the endocrinology department was arranged, followed by an MRI scan. The laboratory tests showed increased levels of hGh and IGF-1 hormones, confirming acromegaly secondary to a pituitary adenoma (somatotropinoma), necessitating surgical intervention. The patient returned for a follow-up appointment after four months of outpatient treatment for the HS and two months after the adenoma surgery, revealing improved clinical and ultrasonographic findings, along with a reduction in the IHS4 score.

Conclusions: Hidradenitis suppurativa is a chronic skin disease affecting the pilo-sebaceous unit, characterized by the appearance of painful nodules, abscesses and fistulas with purulent discharge mostly in the intertriginous regions. In its pathogenesis are involved conditions, some of which include hormonal imbalance, impaired glucose tolerance, insulin resistance and metabolic syndrome. Acromegaly is a hormonal disorder characterized by the excessive production of growth hormone, in most cases it is caused by a pituitary gland tumor that leads to insulin resistance, glucose intolerance and diabetes. Clinically is presented by a gradual and progressive physical disfigurement, particularly affecting the face and extremities, along with various systemic manifestations. A potential link between these conditions can be discussed due to the shared factors of hormonal dysregulation. Acromegaly can disrupt normal hormonal balance and metabolic processes, leading to insulin resistance and metabolic syndrome. These disturbances may contribute to the development HS in those affected. The use of high-frequency ultrasound imaging for assessing and monitoring HS is important as it contributes to achieving disease control and lowering the recurrence rate. Through it, the depth, morphology and vascularization of the lesions can be determined more precisely, which is essential for the assessment and monitoring of the disease. We present a rare case of a patient simultaneously diagnosed with HS and secondary acromegaly. After the surgical intervention of the pituitary adenoma and the outpatient treatment of HS, an improvement of HS lesions was observed during the follow-up period, which was assessed by the clinical and ultrasonographic evaluation. In conclusion acromegaly can be regarded as a rare manifestation of HS supported by the few documented cases in the world literature.

Conflict of Interest: No conflicts of interest.

P12 - CUTANEOUS HELMINTHIASIS DIAGNOSED WITH ULTRASOUND AND TREATED WITH PHARMACOLOGICAL THERAPY

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Purpose. Cutaneous helminthiasis is a parasitic infestation of the subcutaneous tissue caused by various species of helminths, some of which are widespread throughout Europe and Italy. Although it is mostly considered an imported human disease, indigenous cases have been reported.

Methods. A 58-year-old woman arrived at the Infectious Diseases Clinic of the Luigi Sacco Hospital due to the appearance since October 2022 of an itchy, non-painful skin swelling in the left parietal area and reported subsequent "migration" of the lesion up to the left supraglabellar region.

Results. Ultrasound of the soft tissues revealed: "in the left frontal paramedian area, presence in the subcutis of an elongated hypoechoic formation measuring 14x4x6mm containing a coiled binary structure, suspicious for nematode".

Nothing significant in the medical history. No fever, no bowel changes, cough or dysuria. He denies insect bites, contact with animals, travel abroad. Report gardening activities the previous summer in the Marche. Blood tests: white blood cells 7020/mm³ (eosinophils 2%), liver and kidney function normal. At the first infectious disease visit, the patient presented with a hard, non-painful, non-itchy swelling on the left supra-glabella level, without signs of local inflammation. Remaining objectivity in the norm.

On suspicion of cutaneous helminthiasis, treatment was started with albendazole 400 mg q24h for one week, without clinical or radiological response. Surgical incision and removal of the nematode was then proposed, but the patient refused due to susceptibility to the formation of keloids. Albendazole therapy alone was continued for a further 10 days with a repeat ultrasound: "persistence of the known formation with multiple track formations with their own movement, compatible with parasites active in the context of an erythematous-phlogistic area". A new cycle of albendazole was repeated for four weeks, well tolerated from a clinical and laboratory point of view. At subsequent imaging checks, carried out monthly, persistence of the track formation, but disappearance of movement and signs of surrounding inflammation. Objectively reduction of skin swelling.

Conclusion. In cases of cutaneous helminthiasis, in the absence of surgical possibilities, the use of ultrasound appears essential for follow-up and monitoring of the response to antiparasitic therapy.

Conflict of interest. none

P13 - 22 AND 75 MHZ HIGH FREQUENCY ULTRASOUND BASAL CELL CARCINOMA INVASION DEPTH MEASUREMENT, AND CLINICAL FORMS DIFFERENTIATION.

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Purpose: Tumor size and invasion depth are the critical parameters for treatment planning in basal cell carcinoma (BCC). Histological examination of the whole tumor is only available after resection. Therefore, preoperative noninvasive tumor thickness measurement has great potential to clarify tumor invasion depth and margin characteristics. High frequency ultrasound (HFUS) 20 MHz and higher is one of the valuable tools for quantitative assessment of tumor depth and boundaries.

Study aim was determination of the 22 and 75 MHz HFUS diagnostic values for BCC invasion depth measurement, and different clinical-morphologic BCC forms HFUS patterns description.

Methods: Tumor thickness was measured with 22 and 75 MHz HFUS in 34 clinically diagnosed BCCs before surgical excision. After excision, the thickness of each tumor was determined by histomorphometry. Histologic sections were prepared on the same axis as the HFUS scans.

Tumors were classified as thin (≤ 1 mm invasion depth) and thick (> 1 mm invasion depth).

Results: The HFUS patterns for the superficial, nodular, micronodular, and sclerodermiform BCCs were described. The mean thickness of BCCs was 1710 ± 944 μm by high-frequency ultrasound and 1507 ± 861 μm by histologic examination. The mean thickness of BCCs determined by the histologic method was slightly less, but these differences were not significant ($p > 0.05$). A significant, very high correlation was found between the results of BCCs thickness measuring using HFUS and the histomorphometry, Spearman's correlation coefficient $R = 0.96$ ($p < 0.01$).

A significantly high correlation was also established between the thickness measuring results of thin BCCs (≤ 1 mm) $R = 0.90$ ($p < 0.01$), and thick BCCs (> 1 mm) $R = 0.82$ ($p < 0.01$).

Conclusions: Thus, the high and very high correlation between the HFUS histological examination results established in this study confirms the accuracy of the BCCs size and invasion depth quantitative measurements using HFUS. This valuable diagnostic information is necessary for complete tumor removal and has a certain prognostic meaning for BCC treatment planning.

P14 - ULTRA-HIGH-FREQUENCY ULTRASOUND AS AN INNOVATIVE IMAGING EVALUATION OF HYALURONIC ACID FILLER IN NASOLABIAL FOLDS

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Purpose: Dermal hyaluronic acid (HA) fillers are among the most widely used non-permanent injectable products, due to their effectiveness and safety compared to permanent surgical cosmetic procedures. HA fillers are used for nasolabial fold correction, but no study is still available on the use of ultra-high-frequency ultrasound (UHFUS) with 70 MHz probes for the evaluation of HA distribution and wrinkle amelioration. The aim of our study was then to use, for the first time in literature, an UHFUS probe of 70 MHz to evaluate the distribution pattern and permanence of a HA filler for nasolabial folds correction, correlating the results with a panel of validated aesthetic scores and clinical images obtained from the selected population.

Methods: We performed a single-center prospective cohort study, involving a population of patients followed by the Unit of Dermatology, University of Pisa, Pisa (Italy) from May 2022 to December 2022. We selected 13 patients who received HA filler. Clinical and UHFUS evaluation were performed at Week (W) 0, before (T0) and after injection (T1) and at W24 (T24). Aesthetic evaluation was based on the Wrinkle Severity Rating Scale and (WSRS) and Global Aesthetic Improvement Scale (GAIS), calculated by a well-trained investigator who also obtained clinical images using a 3D image system, VECTRA[®] H2 (Canfield Scientific, Inc) and its vector analysis program, Markerless Tracking. Through 3D photographs, a differential volumetric assessment in cubic centimeters (cc) was obtained. US images were taken using a linear 70MHz probe (B-MODE), which was positioned transversally at the midpoint of both nasolabial folds, perpendicular to the skin. Each image was analyzed by two experienced operators to assess quantitative dermal thickness, obtained by measuring in millimeters (mm) the distance between the dermo-epidermal junction and the subcutaneous tissue.

Results: The UHFUS dermal thickness was increased by 11% for both sides at T1 and by 7.4% and 6.8% for the right and left side, respectively, at T2 ($p < 0.01$). Furthermore, the volume assessment performed through the 3D photographs showed a mean increase of +0.26 cc (± 0.13 cc) and +0.36 cc (± 0.21 cc) in the right and left side, respectively, thus maintaining 45% of the result obtained at baseline, immediately after the injection of the filler ($p < 0.001$). The only clinical score significantly modified was WSRS, with a reduction of 56% at T1 and of 47.1% at T2 (p -value < 0.001). The overall judgment of the improvement of the aesthetic aspect using the GAIS score, even if not statistically significant, registered an amelioration to 1.7 (± 0.8) on the right and 1.8 (± 0.7) on the left, thus maintaining 94% of the result obtained at baseline, immediately after the injection of the filler.

Conclusions: Our study represents the first experience in the assessment of nasolabial fold correction through an UHFUS with 70MHz probe. The possibility of acquiring exceptionally high-resolution images presents the opportunity, for the first time in literature, to identify anatomical landmarks and HA dermal filler with unparalleled precision. Moreover, it represents the first multi-modal aesthetic assessment of nasolabial folds amelioration using US evaluation of HA persistence, validated clinical scores and 3D images of the subsequent visual esthetic results.

P15 - ULTRASOUND FEATURES OF ONYCHOPAPILLOMA AT HIGH-FREQUENCY AND ULTRA-HIGH FREQUENCY

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Purpose: This study aimed to identify sonographic features in confirmed cases of onychopapilloma, a benign nail tumor originating from the distal nail matrix and extending along the nail bed. Ultrasound has proven to be a valuable tool for detecting and differentiating various nail lesions, including both benign and malignant tumors.

Methods: We collected medical records from the University of Bologna's nail disease outpatient service and the Institute for Diagnostic Imaging and Research of the Skin and Soft Tissues (Santiago- Chile) between 2016 and 2023. Patient data included sex, age, affected digit, dermoscopic pattern, surgical outcome, and ultrasound features. High-frequency (up to 24 MHz) and Ultra-High Frequency-Ultrasound (up to 71 MHz) exams were conducted and correlated with clinical and pathological presentations, following established dermatologic ultrasound guidelines.

Inizio modulo

Fine modulo

Results: Twenty-two cases were included in the study, consisting of 16 females and 6 males, with an average age of 39.5 years.

Ultrasound examinations detected a hypoechoic band in the nail bed in 86.3% of cases. This band extended parallel to the nail plate, originating from the distal matrix (lunula region) and running towards the distal margin of the digit. Nail plate anomalies included upward displacement in 68.2% of cases, thickening in 68.1%, focal hyperechoic spots on the nail plate in 50%, and irregularities of the ventral plate in 33.3%.

Color Doppler imaging did not reveal increased vascularity in the nail bed in any of the cases. These findings were consistent with the histological characteristics of onychopapilloma, characterized by nail bed acanthosis, papillomatosis, and layered hyperkeratosis. Recurrence occurred in 2 cases after surgery, with tumors showing proximal extension into the matrix region on ultrasound, which was not evident during clinical examination.

Conclusions: High-Frequency and Ultra-high-frequency can provide anatomical information in onychopapilloma that could enhance diagnosis and surgical management.

Conflict of Interest: None

P16 - SUBCUTANEOUS METASTASES FROM THYROID CANCER: A REPORT OF SIX CASES DIAGNOSED AND FOLLOWED UP IN A SINGLE CENTER

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Purpose: Despite its good prognosis, local recurrence occurs in differentiated thyroid cancer (TC) in about 20% of cases and distant metastasis in approximately 10%. The most common metastatic site is represented by lymphnodes of the neck, and more rarely it can spread haematogenously typically to lung, liver and bone and less frequently to brain. Extremely rare are instead cutaneous metastases, which generally occurred in the context of a metastatic and progressive TC disease. The discovery of cutaneous metastases represents a poor prognostic factor, with a median survival of 19 months after the diagnosis. The scalp is the most frequent site reported by almost all case reports. In the subgroup of skin metastases, rarer are subcutaneous localizations to the thyroidectomy scar, described only in few papillary thyroid cancer (PTC) and follicular thyroid carcinoma (FTC) cases. We report 6 cases of PTC/FTC patients with subcutaneous metastases localized both on thyroidectomy scar and near thyroid bed, discovered incidentally during follow-up.

Methods: The 6 reported cases were collected and followed-up at the Endocrinology Unit of the Department of Clinical and Experimental Medicine of Pisa University (Pisa, Italy). Almost all patients performed the first surgical treatment for TC (total thyroidectomy +/- lymphadenectomy) at our center, except for patient 4 and 6 which were referred to us after some years from the initial diagnosis of TC. An ultra-high frequency Ultrasound (UHFUS) examination using 70 MHz probe was performed in 4/6 patients before surgical excision. All subcutaneous metastases from TC were treated by dermatologists and endocrine surgeons of University of Pisa and analyzed by the same anatomico-pathological team. Only for patient 5, the identification, treatment and analysis of subcutaneous lesion was performed in another hospital.

Results: the main characteristics of the 6 patients were reported in the table, below.

	Patient 1 FA	Patient 2 TME	Patient 3 D'AC	Patient 4 VG	Patient 5 PL	Patient 6 SMR
Gender	M	F	M	M	F	F
TC histological subtype	Classical variant PTC	Tall cells variant PTC	Classical variant PTC	Angioinvasive FTC	Tall cells variant PTC	PTC
Latency from TC diagnosis (years)	10	2	12	18	5	7
Site of cutaneous metastasis presentation	Thyroidectomy surgical scar	Thyroidectomy surgical scar	Thyroidectomy surgical scar	Right supra-jugular, at the right medial clavicular margin	Right supraclavicular subcutaneous regions at the neck basis	Thyroidectomy surgical scar
First clinical presentation	Palpable and visible blue nodule within the scar site	Palpable and visible blue nodule within the scar site	Palpable and visible nodule within the scar site	Palpable flesh colored nodule in right supra-jugular region	Intraoperatively discovered during surgery performed for other reasons	Palpable and visible flesh colored lesion
US presentation	Rounded, hypoechoic nodular lesion	Rounded, hypoechoic nodular lesion	Rounded, hypoechoic nodular lesion	Rounded, hypoechoic nodular lesion	NA	NA
Cutaneous metastasis relapses/persistence	Yes	Yes	Yes	Yes	No	No

Conclusions: We reported six cases of subcutaneous skin metastases from DTC at the thyroidectomy surgical scar. Albeit rare, some other reported cases are described by other authors. The diagnosis is always incidentally and clinical and no symptoms have been reported with these lesions. Differently

from other skin metastatic sites, the surgical scar one was not associated with poorer prognosis after their removal. Some hypothetic mechanisms have been proposed and most fitting in our cases were the tumoral cells seeding during primary surgery and/or direct tumoral diffusion due to a favorable local environment and altered local immunosurveillance mechanism. It is very important to identify any suspicious skin lesions during follow-up in DTC patients and confirm their thyroid origin using the cyto and pathological examination, through the staining positivity forTTF-1 and Tg positivity.

P17 - THE ROLE OF ULTRA-HIGH-FREQUENCY ULTRASOUND IN THE LOCAL MANAGEMENT OF HIDRADENITIS SUPPURATIVA

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Purpose: Hidradenitis suppurativa (HS) is a chronic inflammatory disease characterized by painful nodules, draining tunnels, and scarring, primarily affecting body regions rich in apocrine glands. Epidemiological studies report a prevalence ranging from 0.053% to 4%, with a notable predilection for females aged 18 to 40.

The disease's pathogenesis is characterized by follicular occlusion, impaired innate immunity, and imbalances in the cutaneous microbiome.

The therapeutic approach for HS is based on the use of topical and systemic antibiotics, anti-inflammatory and immunomodulating drugs.

An early treatment is important to prevent tunnel formation, a hallmark of disease chronicity. Early identification of permanent lesions allows for less invasive interventions, whereas their recognition only upon clinical manifestation often demands wide excisions.

However, early tunnels are often undetectable on clinical examination.

Ultra-High-Frequency Ultrasound (UHFUS) can identify lesions of 30 microns in size, allowing the detection of micro-tunnels, which are undetectable using High Frequency Ultrasound (20 MHz).

This study aims to demonstrate the role of UHFUS in the local treatment of HS.

Methods: Three female patients, aged 22 to 23, affected by HS, uncontrolled by topical therapy (clindamycin and clobetasol propionate) because of recurrent inflammation and suppuration in a single inguinal lesion, were enrolled in the study. At the initial visit (W0), a clinical examination was conducted, and the Dermatology Life Quality Index (DLQI) was calculated to assess their quality of life. UHFUS mapping, with a 70 MHz probe, was used to evaluate the presence of tunnels and microtunnels. The anatomical borders of detected tunnels were marked on the skin surface using a dermatographic pen. Then the lesions underwent deroofing using diathermocoagulation (DTC), followed by an immediate ultrasound assessment of the ultrastructural morphology of the wounds, from which the Wound Bed Score (WBS) was calculated. No systemic antibiotic therapy was administered, and post-surgical wound management was exclusively based on the application of an oleic matrix-based dressing, releasing reactive oxygen species, and a non-adherent secondary dressing, changed every three days. Follow-up evaluations at 2 weeks (W2) and 6 weeks (W6) included clinical and UHFUS examinations, photography, and DLQI and WBS calculations.

Results: From W0 to W6, there was an average reduction in DLQI by 13 points. From W2 to W6, an average increase in WBS of 5.66 was observed, with complete wound epithelialization. No clinical signs of infection were detected, and no recurrences occurred in the treated lesions during the 6-week follow-up period. UHFUS examination at W6 showed scar lesions, with no tunnels or microtunnels in the treated areas.

Conclusions: In conclusion, this therapeutic approach resulted in an enhancement in quality of life, as showed by the significant reduction in DLQI after 6 weeks. This study suggests a potential role for UHFUS in determining the exact anatomical extension of HS lesions, demonstrated by the absence of recurrences in treated areas during the 6-week follow-up. Additionally, recognizing microtunnels, which are subclinical permanent lesions, allows a less invasive procedure and surgery with sparing of healthy tissue, resulting in a post-surgical lesion that requires moisture wound dressings, avoiding topical or systemic antibiotics.

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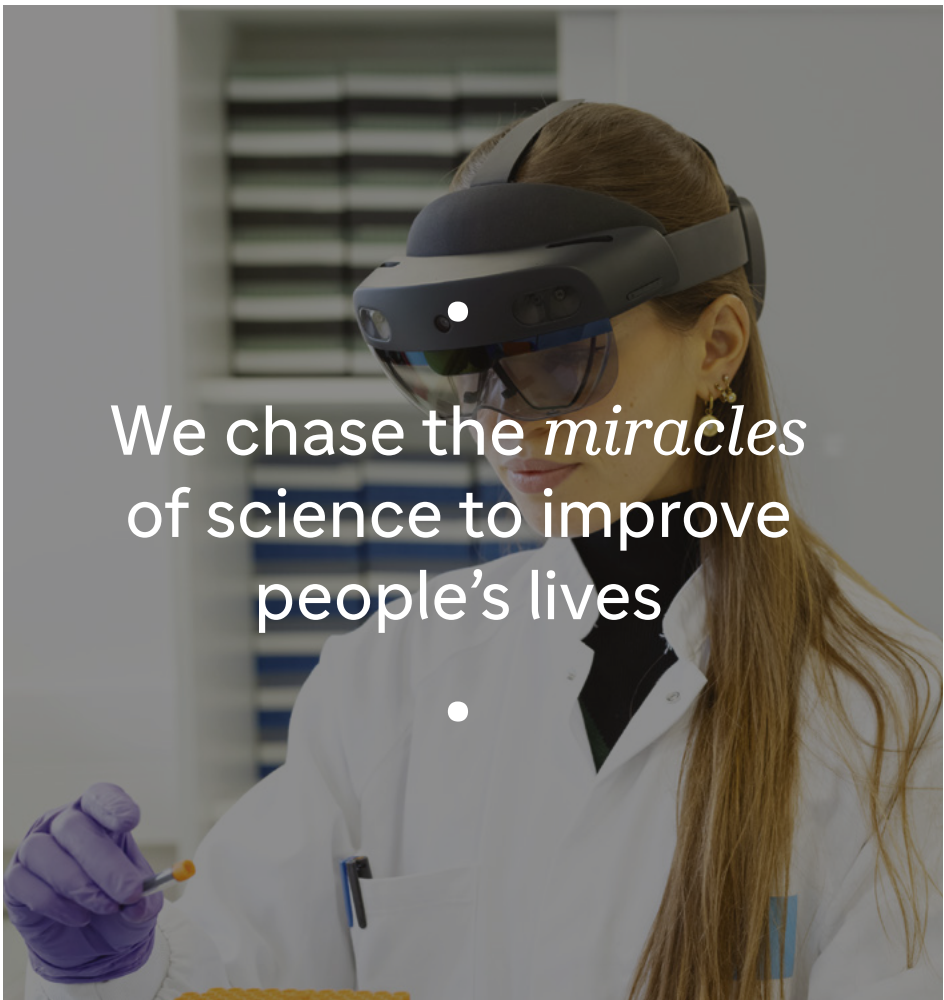


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