Does dermatoradiology exist?

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To the Editor,

We would like to express our thoughts about ultrasound in dermatology and about the interconnections between dermatology and radiology in actual daily clinical practice.

Decades ago, dermatology and radiology seemed to be very distant specialties with few things in common. However, today technological advancements, particularly ultra high-frequency ultrasound, mean that dermatologists and radiologists are working for the same patients more frequently. This will become increasingly evident in the coming decades thanks to the future spread of new ultrasound technologies.

In recent years, high-frequency ultrasound has made it possible to evaluate the epidermis, dermis, and subcutis more clearly, and recently ultra high-frequency ultrasound has permitted better assessment of skin diseases and improved monitoring of dermatological treatments thanks to its high axial spatial resolution (1, 2). Currently, the contribution of ultrasound to the daily work of dermatologists and the number of applications of and publications about ultrasound in dermatological conditions are extremely high. In fact, Xinema Wortsman stated that dermatologic ultrasound is a new imaging subspecialty (3). However, sometimes ultrasound alone is not enough.

Magnetic resonance imaging can evaluate the extension of a skin disease to deeper tissues—for example, to assess subcutis, fascia, and muscle involvement in morphea-like or scleroderma-like lesions, or to evaluate associated muscular and/or skeletal involvement in cases of vascular malformations, such as capillary-venous ones (4, 5). Moreover, when a large or quickly growing adipose subcutaneous lesion is found with ultrasonography, magnetic resonance imaging needs to be performed to better assess the lesion in its entirety.

Positron emission tomography can be performed to identify metastases in cases of neoplasms already confirmed, such as melanoma, cutaneous squamous cell carcinoma, and Merkel cell carcinoma, or to determine the most metabolically active portion of a lesion and therefore help guide biopsy, such as in suspected liposarcomas (6). Moreover, positron emission tomography can be used to evaluate the response of Kaposi’s sarcoma to highly active antiretroviral therapy, sometimes in association with chemotherapy (7).

Paraneoplastic dermatoses such as paraneoplastic pemphigus could take advantage of performing a thoracoabdominal computed tomography examination or a positron emission tomography with the aim of identifying particularly associated neoplasms (8, 9). Moreover, Tc-99m methylene diphosphonate whole-body bone scan, single-photon emission tomography, and non-contrast computed tomography could be used to better quantify the extension of diffuse calcium skin deposits in dermatomyositis, and chest computed tomography can evaluate associated interstitial lung disease (10–12).

X-ray almost never can evaluate the skin, apart from cases with calcinosis cutis or large soft tissue masses. However, it can assess skeletal abnormalities associated with dermatological diseases, such as in Buschke–Ollendorff or McCune–Albright syndromes (13, 14). What is more, new treatments such as biologics determine that patients need to undergo at least a chest X-ray before starting these drugs to exclude active tuberculosis, particularly in cases of positive purified protein derivative readings or interferon gamma release assay (15).

Therefore, dermatology and radiology are already connected, and they will be increasingly linked to each other. It is important to say that dermatoradiology could be considered a new radiology subspecialty, and that radiology needs to apply themselves more to dermatological diseases: dermatology patients deserve further radiological attention.

Dermatological diseases are not only diseases of the skin. Many internal pathologies are strictly related to dermatosis. It is very important that radiologists know more about dermatologic affections so that they can answer better clinical question of the referring physician. In fact, there are many dermatologic diseases in which a radiologist could be asked to perform an ultrasound, a computed tomography examination, magnetic resonance imaging, an X-ray examination, or a positron emission tomography examination.

As always, the better radiologists know the patient’s disease, the better they can answer clinical question of the referring physician. We think that every tertiary dermatology center should have a radiologist subspecialized in dermatoradiology. In our experience, teamwork is necessary to ensure that radiologists are aware of the importance of dermatologists’ questions when a patient undergoes a radiological examination.

Therefore, it is important that a radiologist works inside a dermatology department as part of a dermatology team, or that he or she works in a radiology department while maintaining close contacts with dermatologists—for example, with meetings on a weekly basis. Moreover, we do think that it is important that radiology residents can choose to deepen their knowledge and expertise of...
dermatologic diseases and their radiological implications in order to establish better collaboration between these two medical specialties in the near future, thus allowing better treatment and management of dermatology patients. Therefore, we think that dermatoradiology exists and that it is time to start talking about this new radiology subspecialty.

We would like to encourage the International Society of Radiology, the Inter-American College of Radiology, the Pan Arab Association of Radiological Societies, the African Society of Radiology, the European Society of Radiology, the Asian Oceanian Society of Radiology, and other transnational radiological societies to start thinking about this new subspecialty for a better future and we would like to encourage national radiological societies to engage in open, frequent, and productive discussions about these themes. This will allow many radiologists to deal with these topics during face-to-face meetings, on-line meetings, on-line lectures, distance and continuing education courses, and national and international congresses. We believe this is necessary to achieve the best dermatology patient management.

In conclusion, we agree that dermatologic ultrasound is a new ultrasound subspecialty and a new dermatologic imaging subspecialty; moreover, we think that dermatoradiology should be a new radiology subspecialty.

References