

cosmetic rather than medical ones and are therefore not subjected to the rigors of the US FDA. Despite the claims and marketing hype, little evidence of efficacy has been provided by double-blinded, clinical trials.^[2] No phase-III clinical trials of microdermabrasion devices have ever been conducted to establish their safety and efficacy as required for FDA approval.^[3] There remains a major disparity between the popularity and cohesive and comprehensive scientific data documenting the efficacy of the procedure.^[4] Moreover, a review article on microdermabrasion does not include striae among an exhaustive list of dermatological indications.^[5]

REFERENCES

1. Singh G, Kumar LP. Striae distensae. *Indian J Dermatol Venereol Leprol* 2005;71:370–2.
2. Lazarus M, Baumann L. Miscellaneous cosmetic products and procedures. In: Baumann L, editor. *Cosmetic Dermatology*. 1st ed. New Delhi: Tata McGraw Hill; 2003. pp.120–213.
3. Spencer JM. Microdermabrasion. *Am J Clin Dermatol* 2005;6:89–92.
4. Grimes PE. Microdermabrasion. *Dermatol Surg* 2005;31:1160–5.
5. Gold MH. Dermabrasion in dermatology. *Am J Clin Dermatol* 2003;4:467–71.

Gurcharan Singh, Lekshmi P. Kumar

Department of Dermatology and STD, Sri Devaraj Urs Medical College, Tamaka, Kolar, Karnataka, India.

Address for correspondence: Dr. Gurcharan Singh, 108 A, Jal Vayu Vihar, Kammanahalli, Bangalore 560043, Karnataka, India.
E-mail: gurcharan@vsnl.com

Ultrasound biomicroscopy of the skin to detect a subclinical neuroma of the proximal nail-fold

Sir,

Ultrasound is a very useful, noninvasive modality to visualize normal and abnormal tissue characteristics *in situ*. Recent advances in transducer technology have led to its application in dermatology.^[1,2] Here, ultrasound is used to measure skin thickness. It gives information

on the axial and lateral extension of tumors^[3] and inflammatory processes. It can also be used to monitor various inflammatory conditions such as psoriasis, scleroderma, etc, and to study the therapeutic effects of drugs on skin.

Dermatological ultrasound is performed using a 20-MHz probe, giving a resolution of 80 μm and depth penetration of 8–10 mm. Ultrasound biomicroscopy (UBM) is high-frequency ultrasonography performed using a 50-MHz transducer^[4] or probe (the resolution is 40 μm and depth penetration is only 4 mm). In dermatology, UBM gives a better resolution of the dermis and epidermis compared with the lower-frequency probes. We present a case in which a subclinical tumor (neuroma) in the dermis and epidermis of the skin of the proximal nail-fold of the left thumb was detected by performing UBM.

A 35-year-old female presented with gradually increasing excruciating intermittent pain and tingling numbness at the tip of the left thumb since 5 years. There were no aggravating factors. There was no history of trauma or neck pain. Cutaneous examination revealed normal skin on the left thumb (Figure 1) and no mass or any other abnormality could be palpated. The only positive finding was local tenderness in an area of 2 mm in the region of the proximal nail-fold of the left thumb.

An X-ray of the cervical spine was normal and showed no evidence of spondylosis. A 20-MHz ultrasound of the affected area was indeterminate. Subsequently, UBM was performed. It showed a well-defined hypoechoic



Figure 1: Subclinical lesion on left thumb: arrow shows the site of tenderness

mass measuring $350 \times 400 \mu\text{m}$ in the dermis extending into and causing a breach in the continuity of the overlying epidermis (Figures 2 and 3). UBM of the opposite thumb was normal, showing a normal hyperechoic entry echo of the epidermis and a homogenous isoechoic dermis. A diagnosis of glomus tumor of the proximal nail fold was made. Excisional biopsy of the lesion was suggestive of neuroma. The patient is asymptomatic postoperatively.

Neuromas are solitary skin colored or pink firm papules or nodules at the site of trauma or a scar. In mature neuromas, a lancinating pain may be elicited in response to local pressure. Initially, as a routine, a 20-MHz



Figure 2: Transverse image at the site of tenderness: arrow shows the echogenic mass lesion with breach in continuity of the epidermis

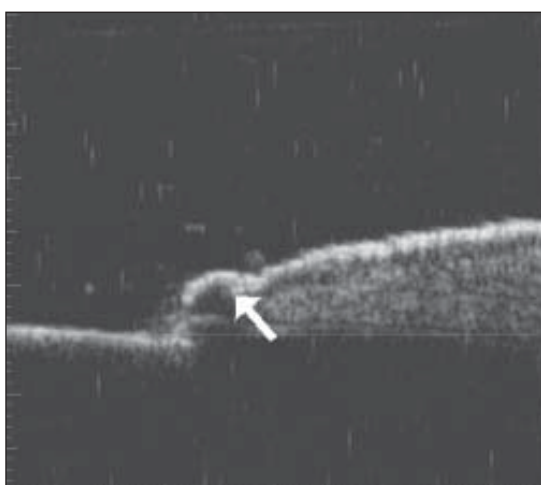


Figure 3: Saggital image at the site of tenderness: arrow shows the mixed echogenic mass lesion at the proximal nail fold

ultrasound was performed.^[5-8] Because the findings were indeterminate, a UBM was performed and showed us a well-defined subclinical tumor.

A non-invasive investigation, UBM, is best suited for epidermal and dermal lesions as its resolution is far superior to that of a 20-MHz ultrasound probe. It exhibits very small anatomical details in the epidermis and dermis because its penetration depth is only 4 mm. Its resolution is comparable with that of a low-power microscope.

Since it is a non-invasive, investigative modality, it can be repeatedly performed with good patient compliance. However, UBM has its limitations in that it does not give tissue diagnosis, which rests on biopsy.

ACKNOWLEDGMENT

We thank Dr. H. R. Jerajani, Professor and Head, Department of Dermatology, LTMC, Sion, Mumbai, for her guidance.

REFERENCES

1. Serup J. Ten years experience with high frequency ultrasound examination of the skin. In: Hoffman K, editor. *Ultrasound in Dermatology*. 1st ed. Germany: Springer-Verlag; 1992. p. 41–54.
2. Thiboutot D. Dermatological application of high-frequency ultrasound. *SPIE Conference Proceedings*. 1999. Abstract No. 3664. Available at http://www.bioe.psu.edu/labs/NIH/derm_app.pdf.
3. Breitbart EW, Mohr P. Sonographic structures of benign skin tumors. In: Hoffman K, editor. *Ultrasound in Dermatology*. 1st ed. Germany: Spinger-Verlag; 1992. p. 171–80.
4. El-Gammal S, Hoffman K, Auer T, Korten M, Atlmeyer P, Hoss A, et al. A 50 MHz high-resolution ultrasound imaging system for dermatology. In: Hoffman K, editor. *Ultrasound in Dermatology*. 1st ed. Germany: Spinger-Verlag; 1992. p. 297–321.
5. Jovanovic DL, Katic V, Jovanovic B. Value of preoperative determination of skin tumor thickness with 20-MHz ultrasound. *Arch Dermatol* 2005;141:269–70.
6. Chen SH, Chen YL, Cheng MH, Yeow KM, Chen HC, Wei FC. The use of ultrasonography in preoperative localization of digital glomus tumors. *Plast Reconstr Surg* 2003;112:115–9.
7. Hirai T, Fumiiri M. Ultrasonic observation of the nail matrix. *Dermatol Surg* 1995;21:158–61.
8. Ogino T, Ohnishi N. Ultrasonography of a subungual glomus tumour. *J Hand Surg* 1993;18:746-7.

Letter to the Editor

**Kalpana D Bhatt, Rui Fernandes,* Rachita
Dhurat****

**UBM Institute, Dadar, Mumbai; *Consultant Dermatologist, Bandra,
Mumbai; **Department of Dermatology, LTMC, Sion, Mumbai, India.**

**Address for correspondence: Dr. Kalpana D Bhatt, UBM
Institute, Ganesh Baug, Behind Ruia College, Dadar, Mumbai
400019, Maharashtra, India. E-mail: drbhatt@vsnl.com**