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Case Report

AVF of superficial temporal vessels after thread brow lift, report of a case [☆]

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ABSTRACT

This report presents iatrogenic arteriovenous fistula of superficial temporal vessels after thread brow lift, which emphasizes on consideration of such rare complications during the procedure. A young woman presented with pulsatile mass of scalp after tread brow lift. Color Doppler and duplex sonography of the mass revealed an AVF (arteriovenous fistula) of superficial temporal vessels, a complication that in a few articles has been mentioned. Patient had received conservative treatment and the mass became very small and about to be disappeared. physicians must be aware of possible vascular injury during thread face lift and should be trained enough to avoid it.

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Introduction

Facial or brow thread lift is a safe rejuvenation technique which has limited complications that are more commonly self-limited, but vascular injury to neighboring vessels is a potential hazard which should be considered as a possible complication. Traumatic AVF (Arteriovenous fistula) of scalp may occur spontaneously or after trauma or surgery.

This paper depicts a young woman with small scalp AVF after thread brow lift.

Case presentation

A 24-year-old healthy woman was referred to our radiology clinic, with pulsatile scalp mass in left temporal region, following thread brow lift (aqua lift, surgical Polydioxanone suture), which was performed in a private aesthetic clinic, one month earlier.

On physical exam, a small soft, pulsatile, immobile, non-tender mass was detected in the left temporal scalp, without any superficial skin changes (Fig. 1).

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Fig. 1 – Gross picture of left temporal superficial mass.

She was hemodynamically stable and the rest of the exam including neurologic one was unremarkable.

Laboratory test results were also within normal range.

On ultrasonography of the skin lump, a superficial hypoechoic well circumscribed mass measuring 10*5.8 mm, was detected, then color and spectral Doppler sonography was performed which showed mixed arterial and venous flow within the lesion, originated from superficial temporal artery and drained to the superficial temporal vein (Fig. 2). Diagnosis of AVF was considered in base of findings of color and duplex ultrasound. After obtaining informed consent and ethic number from Arak university of medical sciences IR.ARAK.MU.REC.1401.259, this report has been scheduled.

Because of small size of the lesion, conservative management was considered by her physician and 3 months later the lesion was still vascular but it's size was diminished to 7.4*3.2 mm (Fig. 3).

Discussion

Scalp AVFs or crissoid aneurysms are rare subcutaneous lesions, representing abnormal connections between feeding arteries and draining veins without an intervening capillary network. They may occur spontaneously, after trauma or surgery [1,2].

Thread lift is a nonsurgical facial rejuvenation technique which reduces postoperative scar and recovery period. This method was introduced first by Sulamanidze in 1989 by using nonabsorbable barbed polypropylene thread and is being used worldwide so far [3].

Brow lift is typically performed for cosmetic purposes [4].

The most common complications of facial thread lift as reported on literature are classified to cosmetic prob-

lems (skin dimpling, facial asymmetry, thread extrusion, contour irregularity) and noncosmetic one (infection, local pain, swelling and bruising). Facial nerve injury is a possible but uncommon complication [5,6]. Vascular injuries are rare complication as well, with a reported incidence of 0.02% [7].

Niimi et al. [8] reported a case of superficial temporal artery pseudoaneurysm after midface thread-lift as an uncommon event.

Our case also implies a vascular injury in same territory, but in a different pattern (AVF), as a rare complication of brow lift.

Penetrating injuries to contiguous arteries and veins allows for a higher pressure of arterial blood to be circulated directly through the lower pressure vein, which confers the patency of the fistulous connection. The most common artery which is vulnerable to traumatic AVF is superficial temporal artery [9].

Color Doppler and duplex ultrasound can be utilized for diagnose. The criteria for the diagnosis of AVF by color Doppler and duplex ultrasound include low flow with high-resistance in the supplying artery, high-velocity arterialized waveform in the draining vein, and turbulent high-velocity flow spectrum at the junction of the artery and vein. CT and MR angiography show early contrast filling in the vein during the arterial phase. Digital angiography as a gold standard is helpful in identifying the feeding arteries and establishing a vascular map for endovascular treatment [10].

Our patient was referred to the physician for initiation of appropriate treatment.

According to size of the lesion, conservative management was considered for her. On follow-up sonogram which was performed three months later, the lesion was still vascular but the size was diminished.

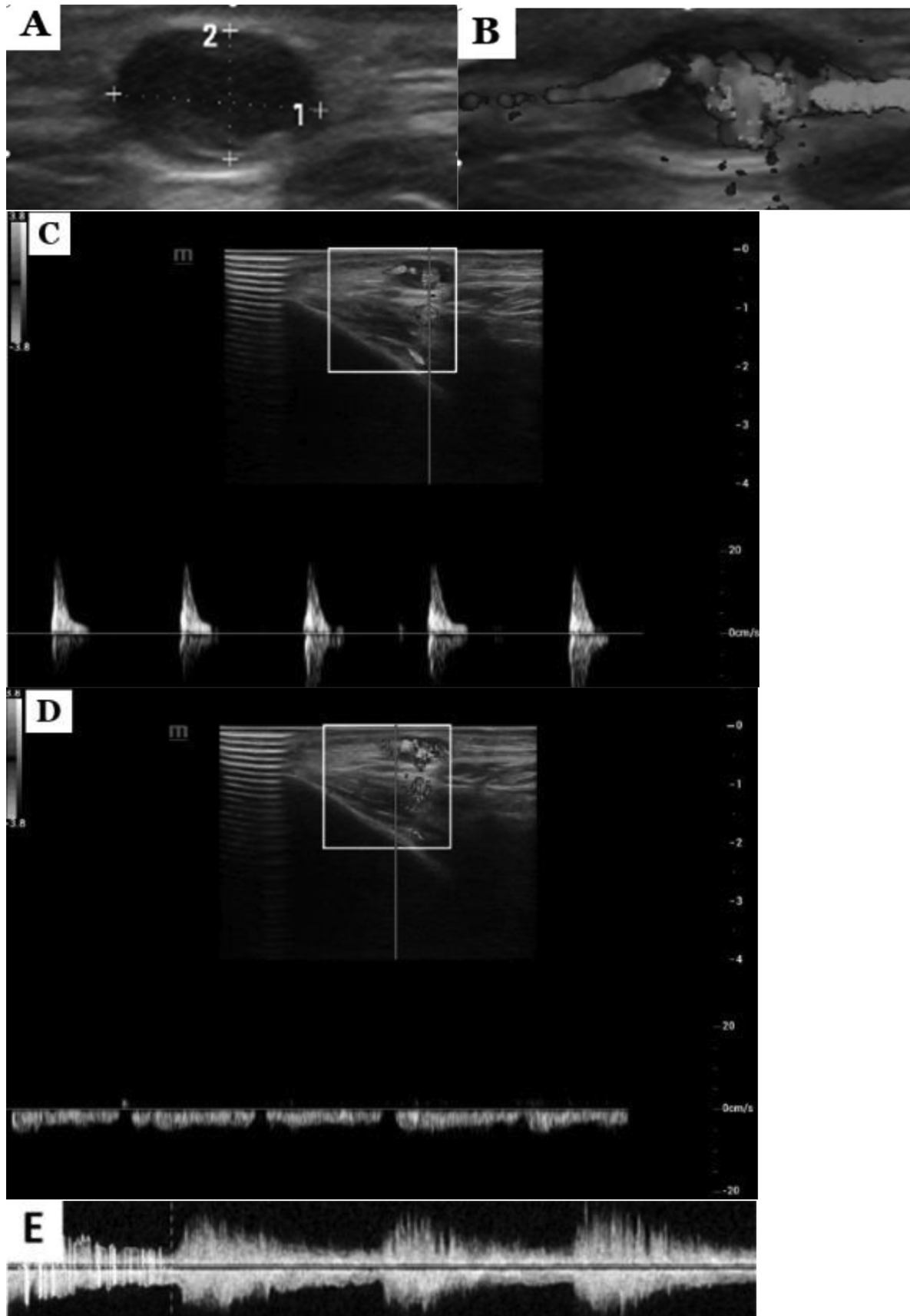


Fig. 2 – (A) Hypoechoic superficial mass, **(B, C, and D)** Mixed arterial and venous color and spectral characteristics. **(E)** Demonstrates arterialized flow within venous component.

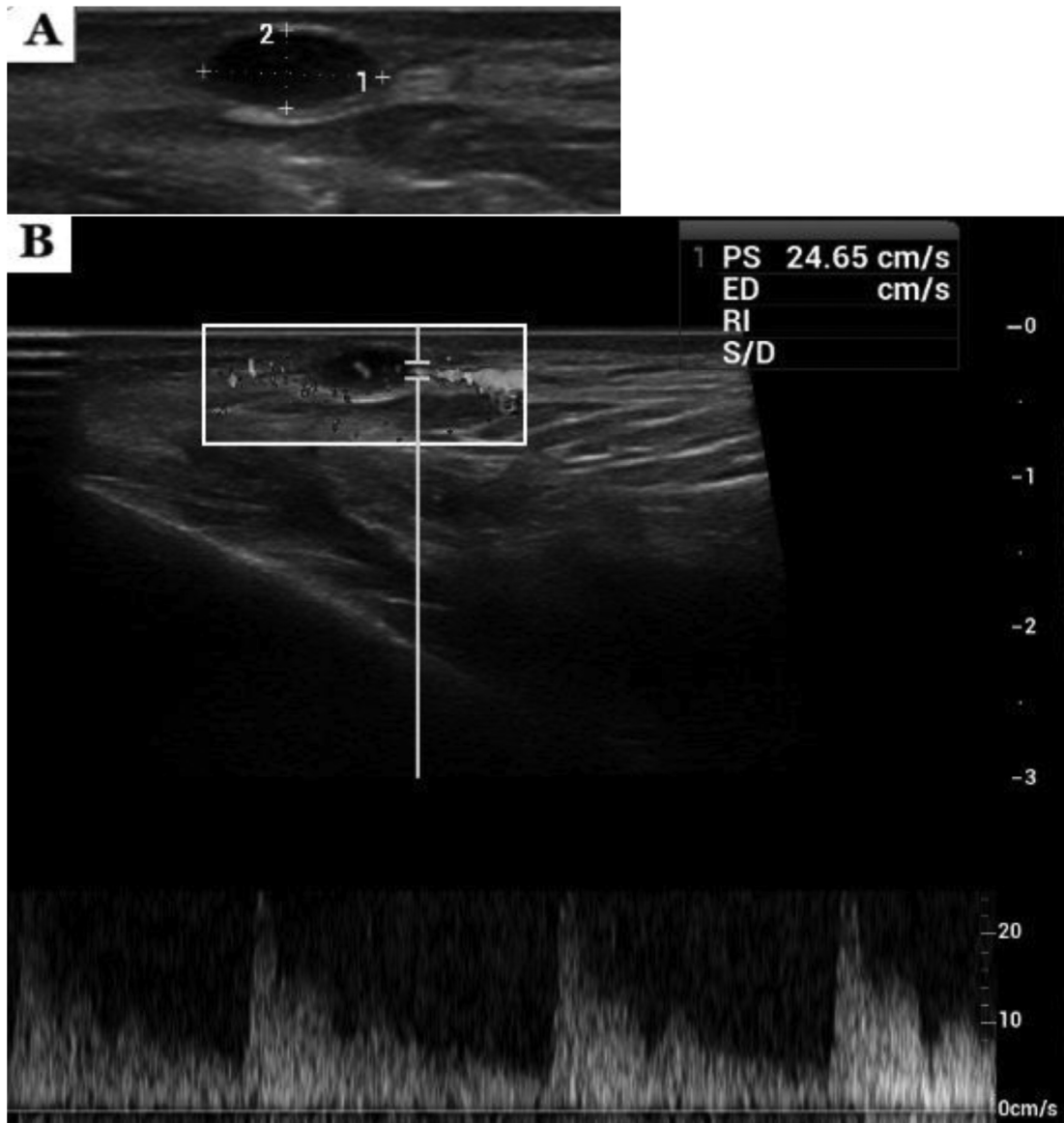


Fig. 3 – Follow-up ultrasound images, 3 months later. After conservative management the lesion size is decreased (A) but it is still vascular (B).

Conclusion

Thread facial and brow lift may have complications which most of them are cosmetic related and self-limited. We presented a vascular complication of thread brow lift which even though is rare, should be taken into consideration before the procedure.

Patient consent

Informed consent has been obtained from the patient.

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