The incidence of vascular occlusion-related injuries affecting the face has risen abruptly worldwide due to the rapid increase in the utilization of injectable implants and suspensions in the management of facial cosmetic issues. Although the anatomy of the facial artery demonstrates some consistency in its overall path, coursing planes, and branching patterns, there remain substantial variations in the depth of its course through the lower face. Here, we describe an instance of a superficially herniated loop of facial artery presenting as a buccal mass initially targeted with steroid injections.

CASE REPORT

A healthy 68-year-old woman was referred to our clinic by dermatology for the surgical management of a persistent “cyst” located in the left pericommissural region. The previous provider had twice injected triamcinolone (Kenalog, Bristol-Myers Squibb, Princeton, N.J.) into the mass without any subsequent involutional response. The mass had been present for longer than 1 year without pain, superficial skin changes, or other associated symptoms. Close examination revealed a 5-mm subcutaneous mass located in the left buccal region without inflammatory changes (Fig. 1). Although minor pulsations of the buccal soft tissues were apparent, the mass itself was well-defined, nonpulsatile, and noncompressible. A differential diagnosis was established that included the possibility of a subcutaneous cyst and vascular aberrancy. Diagnostic vascular imaging was not pursued due to a low index of suspicion and the limited size of the lesion. The patient was offered surgical exploration and management of the lesion through a direct transcannular approach under local anesthesia. The risks and benefits of the procedure were discussed in detail and the patient chose to proceed with the surgical plan as outlined.

During the surgery, upon skin incision and blunt dissection of the superficial subcutaneous tissue layer, a well-defined pink mass became apparent, which was tethered to the surrounding fibromuscular tissues and nonpulsatile. Upon release from the surrounding tissues, the mass was found to be continuous and became pulsatile. (See Video [online], which displays intraoperative footage of the exposed left buccal mass, showing a pulsatile structure corresponding to a superficial herniated loop of facial artery.) The lesion was diagnosed as a superficially herniated, partially incarcerated loop of facial artery. Blunt dissection from the surrounding tissues allowed for it to be reduced and repositioned deep to the superficial musculoaponeurotic system (SMAS) and buccal fascia. The overlying fascia and deep subcutaneous tissues were then re-approximated with interrupted polyglecaprone sutures followed by a standard layered closure of the skin incision. The patient recovered from the procedure well with improvement in the appearance of the buccal region.

Disclosure: The authors have no financial interest to declare in relation to the content of this article. No funding was received for this article.

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DISCUSSION

The course of the facial artery has been well-described in the literature and is known to vary in terms of path, branching patterns, and depth. This tortuosity affords the vessel sufficient flexibility to function within the mobile and dynamic tissues of the buccal region but also predisposes it to accidental cannulation and occlusive injury during facial injections. Because the cutaneous territory served by the facial artery encompasses a large segment of the central face and directly anastomoses with the distal branches of the ophthalmic artery, the potential for disfigurement and neuro-ophthalmological complications is substantial. A recent large meta-analysis of published instances of iatrogenic facial skin necrosis by Soares et al revealed that the peri-commissural region region has the second highest incidence of skin necrosis from filler injections in the facial angiosome (Fig. 2). This is likely due to the more superficial course of the angular artery and the high frequency of treatments targeting that region of the face.

Although the facial artery demonstrates variable positioning relative to the SMAS, the artery typically courses in close association with this muscular layer, often invested by it. However, in the region located approximately 1.5 cm lateral to the oral commissure, due to a gap in muscular tissue, the artery often lies more superficially, covered only by the fragile subcutaneous fat of the buccal region (Fig. 3). For this reason, this facial segment is often
regarded as a higher-risk area due to the vessel’s increased susceptibility to accidental cannulation during facial injections by an unsuspecting practitioner, especially during treatments targeting radial smile lines.

In our case, a herniated loop of facial artery coursing in the immediate subcutaneous tissue was initially misdiagnosed as a subcutaneous cyst and targeted with triamcinolone injections by the initial provider. The patient’s low body-mass index likely contributed to the external prominence of this arterial loop and its visibility, spurring treatment inquiry by the patient. Intraoperatively, the vessel was found to herniate through its thin overlying fascia to protrude superficially while being restricted from reduction due to the adjacent muscular SMAS, requiring surgical correction. Even though this patient did not suffer an acute vascular injury from the attempted injections of the triamcinolone suspension, such instances have been reported in the literature.6–8 Triamcinolone suspensions are characterized by a heterogeneous mixture of particles ranging in size from one to 1000 μm and are thus capable of causing substantial end-vascular occlusion akin to other particulate injectables.9 The safe practice of dilution, mixing, and agitation of injectable suspensions before injection is often recommended, as it resolubilizes the mixture and helps reduce particle size through dispersion.10

CONCLUSIONS

The facial artery is a tortuous and complexly branched vessel that courses through the tissues of the central lower face at a variable depth. In the region located approximately 1.5 cm lateral to the oral commissure, this vessel demonstrates minimal overlying soft tissues and is thus prone to accidental cannulation during injectable treatments. In this case, a superficially herniated loop of facial artery in a patient with a fat-depleted buccal region was erroneously diagnosed as a cyst and treated with attempted injections of a triamcinolone suspension. This case highlights the intrinsic dangers associated with therapeutic and cosmetic injections in the vicinity of the oral commissure, especially if performed by unsuspecting practitioners who may be unfamiliar with the vascular anatomy of the face. Providers should exercise caution when injecting in this region, aim intradermally when targeting superficial radial smile lines, and consider pursuing additional diagnostic vascular imaging, such as Doppler ultrasound to survey the region for any vascular anomalies, when suspected. Finally, practitioners should understand that therapeutic suspensions of medications such as steroids can also potentially carry the risk of vascular occlusion.

Fig. 3. The anatomy of the facial artery and its branches showing the relationship of the vessel to the facial musculature and SMAS and the site of superficial herniation of the vessel in this patient (magnified region). Approximately 1.5 cm lateral to the oral commissure, the facial artery lacks any investing or enclosing muscular layer, increasing the odds of a more superficial location of the vessel within the subcutaneous fat layer.

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