Bilateral Sphenopalatine Artery Embolization in A Low-Energy Facial Trauma: Case Report and Literature Review

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ABSTRACT

Epistaxis is very frequent emergency faced by ENT practician around the world, commonly benign but can lead to dangerous morbidities if refractory. Surgical is the standard treatment and embolization and endoscopic ligation are the emergent routes of treatment constituting the main arsenal to face refractory epistaxis with similar success rate. We thus report a low energy-traumatic bilateral refractory posterior epistaxis treated with arterial embolization with no rebleeding up to 6-month follow-up.

Keywords: Embolization, low energy-trauma, refractory epistaxis.

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I. INTRODUCTION

Epistaxis defines a well common ENT emergency, often benign and easy to manage, they could be on rare occasions refractory, dangerous, and source of serious complications and morbidities; ultimately and rarely deadly [1]. Local and systemic factors have been identified and incriminated [2]. Traumatic epistaxis in not scarce and its mortality rate is low; ranging from 1.2–2.3% but can quite be Life-threatening [3]. We report an unorthodox low energy-traumatic bilateral life-threatening refractory posterior epistaxis, treated amazingly with transcatheter arterial embolization.

II. CASE REPORT

A 23-year-old male patient, known for his occasional drug abuse with no others pathological history, was victim of a facial trauma after he fell and hit his face mildly leading to a bilateral epistaxis of great abundance.

He was first evaluated in the emergences by a private doctor, who firstly proceeded to the airways and hemodynamical stabilization, the performed an anterior nasal packing, after failing in controlling the bleeding by the direct local pressure and the administration of tranexamic acid. Failing to control the bleeding a posterior packing was performed. For 24 hours, the patient was monitored and had a minor intermitted rebleed with posterior discharge was noticed, he was put under general ant biotherapy with amoxicillin clavulanic acid and benefited from a haemostasias workup that turned out to be normal. The haemostasias control was not maintained for a long time, after the patient started rebleeding spontaneously on the posterior packing, he was then transferred to a 3rd degree hospital.

On day 5 after the initial trauma, the patient was admitted to our emergency room, initial evaluation was as follow: Glasgow Scale at 14, heart rate at 120 bpm, BP at 90/55 mmHg, SaO2 at 90% and respiratory rate at 22 bpm.

Despite the anterior and posterior packing, blood discharge was active.

His bloodwork showed haemoglobin at 8.3g/L; Ht 25.6 % white blood count of 14,700 /µL, platelets 323000/µL, PT of 72%, with a normal complete metabolic panel.

The patient was transfused with 1 unit of blood with fluid resuscitation. There were no abnormalities in chest and pelvic radiographs, but CT imaging of the face showed a filling of some ethmoidal cells and sphenoidal sinuses, agenesis with subtotal filling of the maxillary sinuses with visible posterior packing’s balloon at the nasopharynx, with no obvious fracture (Fig. 1).

With failure to control the epistaxis, endovascular treatment was performed under sedation with retrograde puncture of the right femoral artery using the Seldinger technique. Firstly, catheterization of the right internal carotid artery was performed, whose opacification does not objectify any anastomosis with the external carotid territory. Then catheterization of the external right carotid artery was conducted which objectified a major blushing in the projection of the right nasal cavity. From here a microcatheterization of the internal maxillary artery then of the sphenopalatine artery was managed, noting that the opacification through the microcatheter did indeed confirm the blush. Embolization at this level was carry out, until flow stagnation with good angiographic result in post embolization. Furthermore, catheterization of the left external carotid artery was also performed of which the opacification reified likewise a major blushing in the projection of the left nasal cavity. Then, the microcatheterization of the inter- nal maxillary artery and of the sphenopalatine artery was once again managed with bilateral embolization and once again with good angiographic result posteriorly (Fig. 2). The immediate, short- and long-term follow-up were normal with no rebleed or any complications major nor minor up until 6 month follow-up marque.

III. DISCUSSION

60% of the adult population suffer from epistaxis, leading 6% of those to inquire emergent professional medical care [1] and 1% surgical treatment [4]. Customarily, there is a bimodal age distribution; for epistaxis occurrence, affecting population aged 2 to 10 years and 50 to 80 years [1].

Epistaxis is either classified into primary or secondary, the first one is spontaneously, idiopathic without a given reason; though identified factors have input, the latter, is contributed to distinct causes, such as postsurgical, vascular abnormalities, trauma, coagulopathies, and anti-coagulant, anti-inflammatory analgesic medications, acetylsalicylic acid and so on [1].
Or further classified based on the anatomic source of bleeding; anterior in 80% to 90% arising from Kiesselbach plexus [5] and are easily manageable by applying primary or secondary measures such as topical vasoconstrictors administration, local pressure, chemical or electrical cauterity administration, anterior nasal packing and one or two selected septoplasty cases; needless to say, after the initial evaluation of the patient and insurance of hemodynamic stabilization and airway management [6]. Or in 10% posterior, mostly arterial in origin, incriminating most commonly the sphenopalatine artery and are quite more challenging to manage and the last-mentioned conservative measures are not entirely potent, which leads to more aggressive methods: posterior pack, or even surgical and endovascular ones [1], [6]-[8].

Trauma is frequent etiology of posterior epistaxis, least not the most common one [6]-[12], and post trauma epistaxis is most generally occurring in high-energy trauma and high-grade fracture and are responsible for life-threatening haemorrhage [3]-[13]. CT scan is a must indication the arterial origin, active focal extravasation and pseudoaneurysm or pseudo-occlusion may be showcased thanks to angiogram [15]-[22], the embolization technique in traumatic epistaxis inquire microcoils in potentially dangerous collaterals and the tip of the microcatheter is required to be as near as maybe able to the arterial source of bleeding [15] and in striking number of patients a bilateral extravasation is noted and very well explained by the high energy trauma [23].

Described in literature as the standard treatment for refractory epistaxis; the surgical route includes the internal maxillary ligation or external carotid artery as an open approach but also selective endoscopic route ligation; demarcating the transnasal endoscopic sphenopalatine artery ligation (TESPAL) [6]-[9].

Meanwhile and with the emergence and the advancements of interventional radiology and angiography, embolization for the control of epistaxis is also a valid, efficient choice [6]. First described by [10] and have been well developed since then, delivering a high immediate success rate but controversial short and long-term rebleed rates [11]. When comparing between the endoscopic treatment and super selective embolization we find a similar primary success rate ranging between 93% to 100% [9], [12], [14], [15]. Reference [11] reported an overall rebleed rate for endovascular route of 35.3%, [12] 13% major rebleed, [16] reported 3 patients had mild recurrences and [17] reported 15.8% recurrent epistaxis. Reported failure rate ensuing TESPAL varies from 13% to 22% [19], [20]. Reference [11] reported 18% and 34% overall complications in the surgical and embolization groups respectively, with a failure rate in the first group ranging from 7% to 9%. Though, the 2 therapies’ statistics are not eloquently different; it is outlined that the reported complications alongside the embolization method are considerate more seri-ous than those aligned with the internal maxillary ligation [9], [11], [15], as for mortality rate [21] reported similar results for both groups, but higher rate of stroke, postoperative hematoma in the embolization set than the surgical ligation one.

IV. CONCLUSION

The typical clinical traumatic epistaxis presentation is a life threatening one especially with high-energy trauma leading to a high-grade fracture. The management of epistaxis is well and done hierarchized and defined. The embolization or surgical methods are preferable in terms of refractory epistaxis. The moral of this report case is that low energy trauma may very well be the cause of bilateral posterior epistaxis which practitioners have to keep in mind.

CONFLICT OF INTEREST

Authors declare that they do not have any conflict of interest.

REFERENCES


