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Case Series

Management strategies of epistaxis with different etiologies

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ABSTRACT

Epistaxis is generally divided into two types; the more common anterior nasal bleed and the less common profuse posterior nasal bleed. Anterior bleeds arise from the antero inferior part of the septum, known as little's area, where a plexus of vessels will be present, known as Kiesselbach's plexus. Posterior bleeds commonly arise from Woodruff's plexus. We encountered four cases of epistaxis in the last one year. Out of four, three were males and one female. The etiology of these patients was like Glanzmann thrombasthenia (GT), pseudoaneurysm of sphenopalatine artery and hypertensive urgency. So, they were managed according to their etiology. For the better outcome, proper team work is needed from various specialties.

Keywords: Glanzmann thrombasthenia, Pseudoaneurysm, Sphenopalatine artery, Hypertensive urgency

INTRODUCTION

Epistaxis is one of the most frequently encountered emergencies in ENT practice.[1] It is rarely fatal. It can be divided into anterior and posterior. Around 90% of the anterior bleeds occur at Kiesselbach's plexus.[2] Posterior bleeds are commonly seen arising from the woodruff's plexus.[3] Usually there is profuse bleeding, with difficulty in accessing the site of bleed and may lead to aspiration if not controlled. Posterior bleeds are seen commonly in patients with blood dyscrasias, vascular anomalies, hypertension and on anticoagulant medication.[4] The outcome of management depends on the severity of bleeding and underlying medical problems.

CASE SERIES

To assess the magnitude of the problem in our institute, data was taken from the hospital records from January 2024 to January 2025 and analyzed. A total of 45 patients were presented to our department with bleeding from their nose. Males were more (27) than females (18) (Figure 1). In the age distribution, it is more commonly seen in adults (61-80). A total of 23 patients were present in this age group (Table 1).

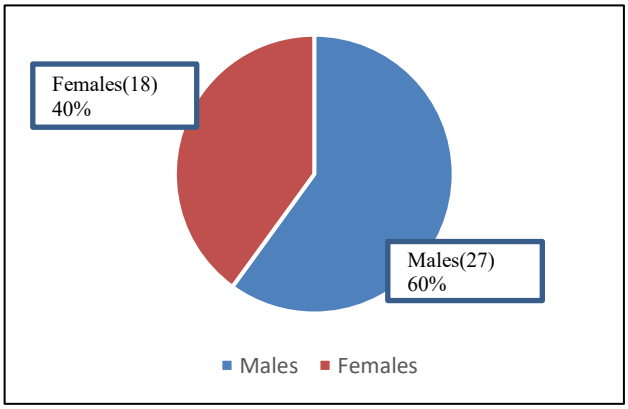

Figure 1: Total no. of cases.

Table 1: Age wise distribution.

Age (in years)	N
21-40	8
41-60	14
61-80	23

Out of these forty-five cases, four cases were presented with profuse bleeding. They had different etiologies and were managed accordingly.

Case 1: GT with epistaxis

A 37-year-old female patient with known case of GT undergoing repeated transfusions in the hemato-oncology department presented with cold and epistaxis for 2 days. To control the nasal bleed, inj. tranexamic acid was given and nasal packing was done in the emergency department. She was admitted for supportive care and management. As the patient's platelet counts were low at the time of admission, she was transfused with 1 unit of irradiated single donor platelets (SDP) along with six units of random donor platelets (RDP). The transfusion was uneventful. As the patient is found to be having mild bleeding from the nasal cavity, a CT angiogram was done to determine the status of the vasculature. But there was no evidence of any aneurysms or vascular malformations. There was a mild focal small extravasation of contrast along the posterior aspect of left middle meatus (Figure 2). Nasal pack removal was done in the operation theatre. Bleeding points were coagulated with bipolar cautery. To prevent the furthur bleeding, the nasal cavity was packed with surgicel. The patient was stable hemodynamically and discharged.

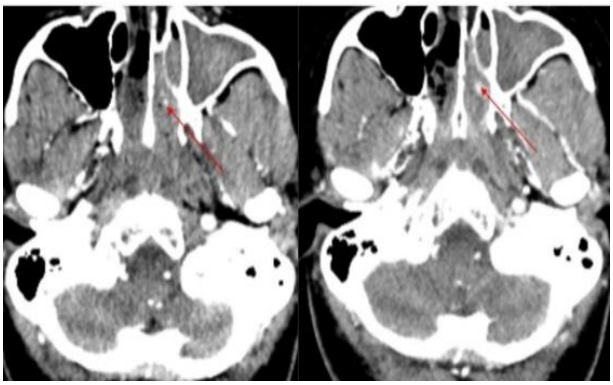

Figure 2: CT angiogram early arterial and delayed phases showing focal small active extravasation of contrast along posterior aspect of left middle meatus.

GT is a rare congenital autosomal recessive bleeding disorder. This is caused by a defect in the platelet membrane glycoprotein IIb/IIIa, which is essential for platelet aggregation and hemostasis. Patients with GT have lifelong risk of bleeding episodes that include epistaxis, gingival hemorrhage and menorrhagia. Diagnosis of GT is by decreased expression of platelet membrane CD 41 (Gp IIb) and CD 61 (Gp IIIa). Treatment of this condition includes antifibrinolytics, platelet transfusion or recombinant activated factor VII.[6]

Case 2: Sphenopalatine artery pseudo aneurysm with epistaxis

A 28-year-old male patient has been presented to the emergency department with massive bleeding from both the nasal cavities for 2 days. Initially, he was taken to a local hospital, where anterior packing was done. Since the bleeding was not controlled even after the nasal packing, he was referred to us. He underwent septoplasty, functional endoscopic sinus surgery and adenoidectomy 2 weeks ago. Nasal pack removal was done 2 days after the surgery. The patient was asymptomatic for 2 weeks. But he had bouts of bleeding after forceful sneezing. Routine blood parameters were normal on evaluation.

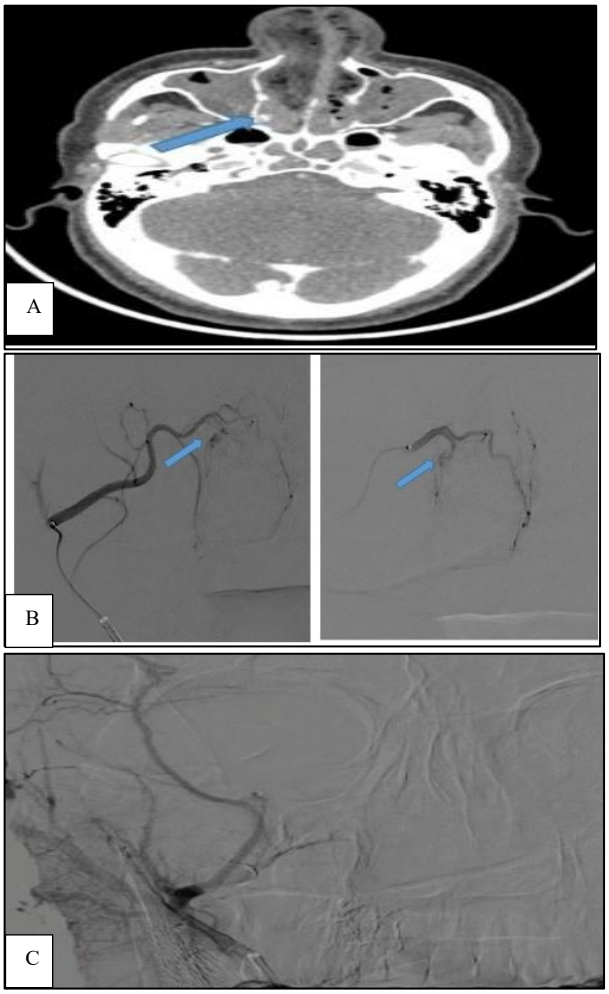

Figure 3 (A-C): A-Axial CT images reveal a pseudo aneurysm of the sphenopalatine artery on right side. B: External carotid angiogram reveals a vascular blush originating from the lateral nasal branch of sphenopalatine artery arising from right distal internal maxillary artery. C: External carotid angiogram AP view shows complete resolution of the vascular blush post embolization.

CT angiogram was done on a priority basis. It revealed a pseudo aneurysm of the sphenopalatine artery (Figure 3 A). Digital subtraction angiography reveal a vascular blush originating from the right internal maxillary and the sphenopalatine arteries (Figure 3 B). After getting the consent from the patient and his relatives, embolization of the right internal maxillary artery was done with polyvinyl alcohol particles (Figure 3 C). Hemostasis was achieved. Nasal packs were removed on the next day. Chemical cauterization (with silver nitrate) of tiny bleeders was done. The patient was discharged in a stable condition.

Pseudo aneurysm or false aneurysm occurs when there is a breach in the arterial wall leading to blood collection outside the vessel, contained by surrounding tissues. Various causes related to it like trauma, infection, iatrogenic injury and tumors. Posterior septal artery, a branch of sphenopalatine artery, and anterior ethmoidal artery are most commonly involved. Endovascular embolization is the preferred option for controlling the bleeding. Surgical ligation is reserved for failed embolization.[7]

Case 3: Epistaxis from sphenopalatine artery bleed

A 36-year-old male patient with no comorbidities presented with the complaint of bleeding from the right nostril after forceful nose blowing for 6 hrs. He was admitted and anterior nasal packing done. But the bleeding was profuse, not controlled with nasal packing. So, he was advised CT angiography. Angiogram revealed contrast extravasation from the left sphenopalatine artery (Figure 4). Cryoprecipitate transfusion was given in view of low fibrinogen. After getting consent from the patient, emergency internal maxillary artery embolization was done. Bleeding was controlled. Overnight, he was observed in the ICU. He was shifted to a ward once he became clinically better. Nasal packs were removed, and the patient was discharged.

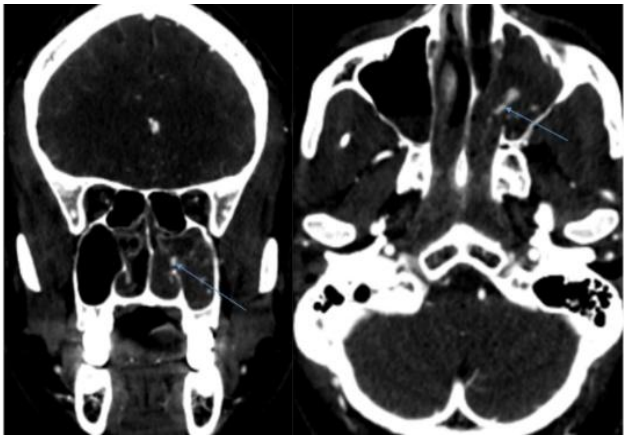

Figure 4: CT angiogram shows active extravasation of contrast into the of left maxillary hemo sinus is noted.

Case 4: Hypertensive urgency and iron deficiency anemia with epistaxis

A 42-year-old male patient with known case of hypertension and iron deficiency anemia had presented with high grade of fever with chills and cough for 10 days. He also had a history of severe bleeding from both nostrils for 2 days. Anterior nasal packing was done in a local hospital. But the bleeding was not controlled, so he referred to us. The patient's coagulation profile was normal. He was advised a CT scan of paranasal sinuses with contrast. It showed hemosinus without any active extravasation of contrast (Figure 5). Nasal pack removal was done after 48 hours and bleeders were controlled with bipolar cauterization. Hypertension and anemia were corrected and the patient was discharged.

Figure 5: CT PNS with contrast shows hemo sinus without any active extravasation of contrast.

DISCUSSION

Epistaxis is one of the most frequently encountered emergencies in ENT practice.[1] It occurs in up to 60% of the adult population at some point in their life time. Depending on the source of bleeding, it can be classified as anterior and posterior, with anterior epistaxis being the more common form.[2] It usually arises either from Kiesselbach's plexus, a rich vascular anastomotic area formed by end arteries such as the anterior ethmoidal artery, posterior ethmoidal artery, sphenopalatine artery, greater palatine artery and superior labial artery or from retrocolumellar vein.[5] Most cases of anterior nose bleeds, common in both children and young adults, tend to be minor and self-limiting. Posterior epistaxis arises from the woodruffs plexus, which is located on the posterolateral nasal wall of the nasal cavity, just inferior to the posterior end of the inferior turbinate, via branches of the sphenopalatine artery (SPA), predominantly affects elderly individuals.[3]

The causes of epistaxis can be categorized into local and systemic. Local causes include traumatic (nose picking, facial injury), infective, inflammatory, anatomical (deviated nasal septum, septal spur), climatic changes, foreign body and neoplasm. Systemic causes include cardiovascular diseases such as hypertension and vascular heart disease, liver disease, renal failure, hematological diseases causing coagulopathies and anticoagulant drugs. In most instances, epistaxis is of unknown origin, classified as idiopathic.[4]

Different techniques are used to manage epistaxis based on its location, severity and underlying cause. Management options include both conservative and surgical methods. The conservative methods include manual nasal compression, topical vasoconstrictors, local cauterization (chemical or electric) and nasal packing (anterior or posterior).[8] If the source of the bleeding point is clearly seen, it can be sealed either with chemical cautery using silver nitrate or with electro cautery using bipolar diathermy. Bipolar diathermy is preferred over monopolar diathermy for electro-cauterization, due to the risk of optic or oculomotor nerve damage when used near to the orbit.[9]

If the bleeding persists despite of manual compression or cauterization, anterior nasal packing is employed. This can be achieved by using nasal tampons such as merocel, ribbon gauze impregnated with bismuth iodoform paraffin paste (BIPP). Alternatively, absorbable materials like surgicel or gelfoam may be used. In cases of severe bleeding unresponsive to anterior nasal packing, posterior nasal packing is indicated. It can be done either by using a conventional gauze pack or a Foley's catheter or specially designed commercial devices like the triluminal nasal balloon catheter or Epistat nasal catheter.

Surgical or interventional methods are reserved for the cases of refractory epistaxis that fail to respond to conservative measures. Options include selective arterial embolization or ligation of arteries. During angiographic embolization, materials such as coils, gel foam, or polyvinyl alcohol (PVA) are used to block the bleeding vessel.[10] PVA particles (250-500 μ) are preferred in view of distal embolization. Several operative techniques are used for ligation of vessels, such as anterior or posterior ethmoidal artery, internal maxillary artery, sphenopalatine artery or external carotid artery. Although complications of arterial embolization such as stroke, hemiplegia, ophthalmoplegia, facial nerve paralysis and soft tissue necrosis can occur, they are very rare when the procedure performed by experienced hands.[11] Embolization offers certain advantages over surgical ligation, including procedure done in local anaesthesia, slightly less expensive and shorter hospital stay. However, both the methods show comparable success rates and similar risk profile for major complications.[12]

CONCLUSION

Effective management of epistaxis requires a patient-centered approach, considering not only the severity of the bleeding but also underlying etiologies and individual risk factors. While nasal packing remains a cornerstone for initial control, interventional radiology techniques such as embolization provide definitive treatment in refractory cases such as pseudo aneurysm and spontaneous sphenopalatine artery bleeds. Patients with systemic causes like GT must be counselled for repeated platelet transfusions and local measures to control the bleeding. A comprehensive strategy incorporating prompt diagnosis, supporting care and follow-up is key to reducing recurrence and improving patient outcomes.

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