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Lobular capillary hemangioma of the nasal cavity treated by radiofrequency excision: a retrospective study

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ABSTRACT

Background: The objective of the study was to assess the clinical presentation, radiological features and treatment by radiofrequency excision of lobular capillary hemangioma of the nasal cavity in a tertiary care hospital.
Methods: A retrospective descriptive study of capillary hemangioma of the nasal cavity on patients attending a tertiary care hospital from January 2015 to January 2019 was conducted. Case records were analysed and results were tabulated.
Results: There were 14 patients of capillary hemangioma of the nasal cavity of which 11 were males and 3 females with age ranging from 15 to 68 years. Epistaxis was the most common symptom followed by nasal obstruction. Anterior nasal septum was the most commonly affected area followed by posterior nasal septum, nasal vestibule and inferior turbinate. CT scans showed enhancing lesion with no bony erosion. Patients underwent endoscopic and classical excision by radiofrequency. No patient had any recurrence over 6 to 24 months follow-up.
Conclusions: Lobular capillary hemangiomas of the nasal cavity present with epistaxis as the common symptom and occur most commonly over anterior part of nasal septum. Excision by radiofrequency results in minimal complications without any recurrence.

Keywords: Lobular capillary hemangioma, Epistaxis, Radiofrequency

INTRODUCTION

Hemangiomas are benign tumours of the blood vessels which commonly affects skin, mucosa and internal organs like liver and brain. Hemangiomas are classified as capillary, cavernous and mixed. Capillary hemangioma or lobular capillary hemangiomas are benign tumours of vascular origin of unknown etiology. They frequently affect mainly gingiva, oral mucosa, tongue and lips.[1]

Sinonasal hemangiomas are rare with only 10% of all hemangiomas of the head and neck.[2] The nasal mucosa is commonly involved usually over the nasal septum and turbinates. Few reports of intraosseus capillary hemangioma of the inferior turbinate and bone of the maxillary sinus and nasal floor are reported in the literature.[3] Various investigations including diagnostic nasal endoscopy, imaging like computed tomography (CT) scans and magnetic resonance imaging have been used to differentiate it from inflammatory and other neoplastic lesions.[4] Inspite of various treatment options, surgical excision is the mainstay of treatment.

The aim of the study was to evaluate the clinical and radiological features of nasal lobular capillary hemangioma and to analyse the treatment by endoscopic

and classical excision using radiofrequency and their outcomes.

METHODS

A retrospective descriptive study of patients who were operated at Shri Dharmasthala Manjunatheshwara College of Medical Sciences and Hospital Dharwad, Karnataka, India over a period of 5 years from January 2014 to January 2019. All patients who underwent surgical excision under general anaesthesia or local anaesthesia by radiofrequency and diagnosed to have lobular capillary hemangioma on histopathology were included. Data regarding demographic details of patients, indication for surgery, presenting complaints, energy source used, any intra-operative or postoperative complications and recurrences were analyzed by calculations of percentages and means where ever required.

Surgical procedure

Under local or general anaesthesia nose was decongested and either a sub mucoperichondrial or a sub mucoperiosteal flap was raised using radiofrequency probe with a 2-3 mm margin of normal mucosa around the lesion. Hemostasis was achieved and the base of the lesion was cauterised by radiofrequency probe in coagulation mode. Ellman radiofrequency generator with nasal loop probes was used. The power ratings were 2 MHz for cutting and 4 MHz for coagulation of the base.

All patients were followed up for a period ranging from 6 to 24 months.

RESULTS

This study included 14 patients of which 11 (78.57%) were males and 3 (21.42%) females with a male to female ratio of 3.6:1. Ages of the patients ranged from 15 to 68 years. The mean age being 34.07 (Figure 1). There were 2 (14.28%) patients with pre-existing diabetes mellitus and 1 (7.14%) with hypertension who were on regular medications for the same. Others did not have any comorbidities.

All patients had unilateral capillary hemangioma with 9 (64.2%) on right side and 5 (35.7%) on the left side. The most common site was anterior part of the nasal septum 6 (42.8%) followed by posterior part of the nasal septum 4 (28.6%) and the nasal vestibule 3 (21.4%) and over the inferior turbinate 1 (7.14%) (Figure 2).

All 14 (100%) patients presented with epistaxis. In addition to epistaxis nasal obstruction was present in 4 (28.5%) and mass in the nasal cavity in 2 (14.3%) (Figure 3 and 4).

All patients underwent diagnostic nasal endoscopy which showed a single dark red mass which bled on manipulation. 7 patients underwent contrast enhanced CT scans of the paranasal sinuses (Figure 5).

Out of 14 patients 11 (78.57%) patients underwent endoscopic excision by radiofrequency for lesions over the nasal septum and inferior turbinate. The remaining 3 (21.42%) patients underwent classical excision by radiofrequency for lesions over nasal vestibule (Figure 6). Histopathological examination revealed lobular capillary hemangioma with areas of attenuation and ulceration overlying sheets of proliferating endothelial cells forming small lumen in edematous stroma (Figure 7 and 8). No post-operative complications were observed in any patients. Patients were followed up for a period ranging from 6 months to 24 months. No recurrences were noted in any patients.

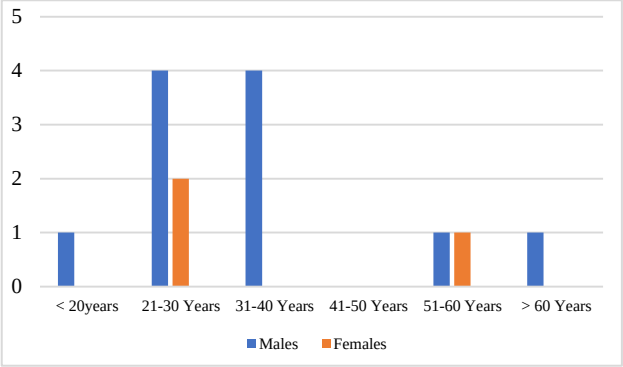

Figure 1: Demography of patients.

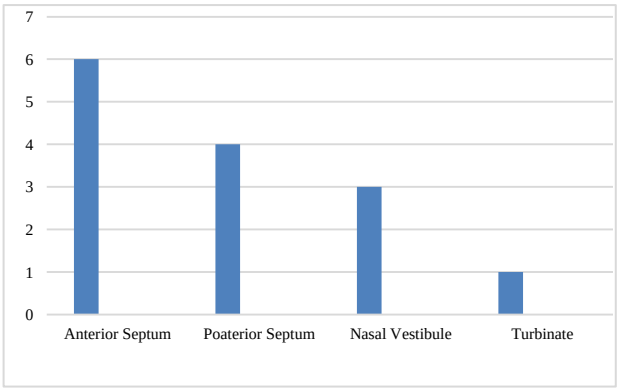

Figure 2: Site of nasal hemangioma.

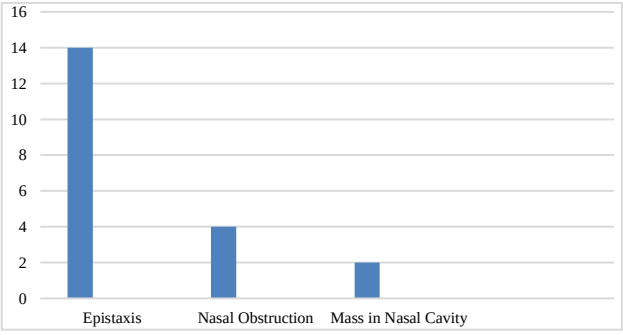

Figure 3: Complaints of patients.

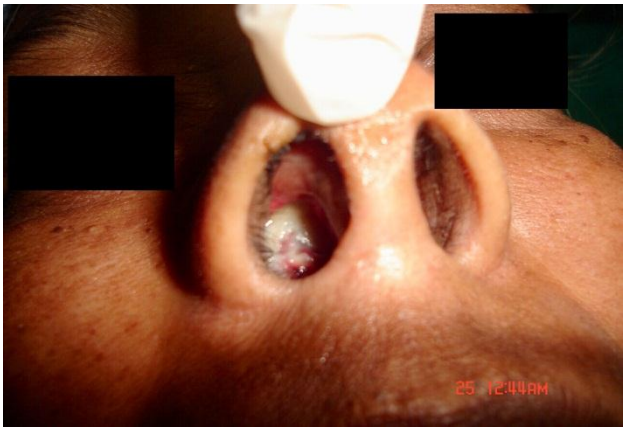

Figure 4: Capillary hemangioma presenting as fleshy mass arising from right inferior turbinate.

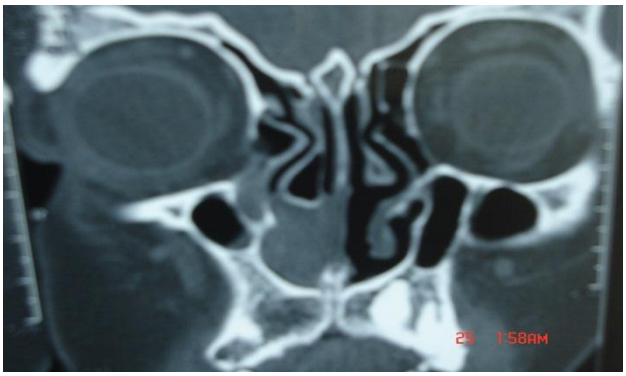

Figure 5: Hyper dense soft tissue over right inferior turbinate without underlying bone erosion.

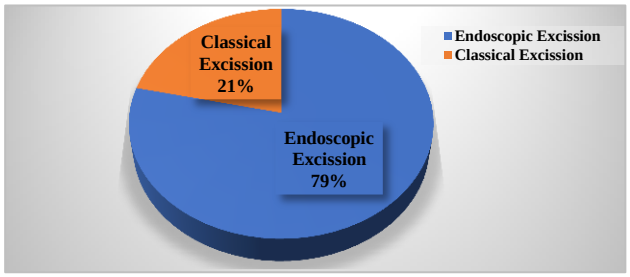

Figure 6: Distribution of patients according to surgical treatment.

Figure 7: Excised haemangioma.

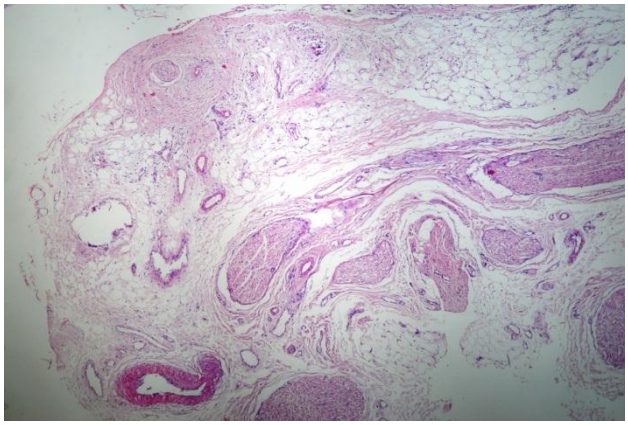

Figure 8: Thin walled blood vessels packed around by connective tissue.

DISCUSSION

Lobular capillary hemangioma are benign tumour featuring vascular malformations of unknown etiology.[5] It was first described as 'human botryomycosis' by Poncet et al assuming it to be fungal etiology.[6] Hartzell in 1904 coined the term 'Pyogenic granuloma' which is a misnomer as it is neither infectious nor granulomatous.[7] Mills et al in 1980 named it as 'lobular capillary hemangioma' based on the histopathological findings.[8] Lobular capillary hemangioma are commonly seen on the skin and mucosa of the oral cavity, but less commonly seen in nasal cavity.[9] Various etiological factors like trauma, hormones, viral oncogenes, arteriovenous malformations, angiogenic growth factors, pregnancy and foreign body.[9] However Pagliai et al in their retrospective study of 112 patients found only 5 patients with history of trauma, also 76.8% of patients had no history of traumatic, dermatologic or vascular pathologies thought to be associated with lobular capillary hemangioma.[10] None of the patients in our study had history of trauma or any other vascular malformations.

Lobular capillary hemangioma occurs equally in males and females beyond 40 years of age, but has female predominance in 3rd decade of life, during pregnancy and those on oral contraceptives. These lesions regress after delivery probably pointing towards a hormonal cause.[11,12] In our study 11 males were affected but 7 of them were in their 4th decade and above, one male patient in his 2nd decade. Three females were affected who were in their 3rd decade.

Chi et al in their study reported epistaxis being the most common symptom followed by other intra-nasal symptoms including nasal obstruction and rhinorrhea. Other symptoms such as facial pain and headache were rarely observed.[13] Epistaxis was the most common symptom in our study followed by nasal obstruction and mass in the nose.

Puxeddu et al in their study reported nasal septum to be most common site followed by nasal vestibule, inferior turbinate, middle turbinate and uncinate process.[14] Ash et al in their study of 23 sinonasal hemangiomas found anterior nasal septum to be the most common site followed by nasal vestibule, inferior turbinate, middle turbinate and uncinate process.[15] Our results were similar with most common site being anterior nasal septum followed by posterior nasal septum, nasal vestibule, inferior turbinate.

Lobular capillary hemangioma appears as enhancing well defined lesion with no underlying bony erosion and calcification on CT scans, which might be necessary in some cases to exclude other differential diagnosis like neoplastic lesions such as hemangiopericytoma, histiocytoma, leiomyoma, osteoma, squamous cell carcinoma, adenocarcinoma granulomatous conditions like Sarcoidosis, Wegener's granulomatosis.[8]

Surgical excision forms the mainstay of treatment. Since lobular capillary hemangioma is a vascular tumour surgical excision has been tried with cryotherapy, LASER, excisional surgery with or without embolization and radiofrequency ablation. Radiofrequency is the oscillating rate of an alternating electric current or electromagnetic field.[16] Radiofrequency energy generated is used for electro surgical cutting, fulguration or desiccation by conversion of electrical energy to heat.[17] Few cases using radiofrequency for sinonasal hemangiomas are reported in literature. Kim et al have used radiofrequency coblation in the removal of capillary hemangioma from inferior turbinate in which they concluded that bleeding was minimal.[18] But radiofrequency ablation has been extensively used in hepatic hemangiomas including capillary hemangiomas. Radiofrequency ablation damages the endothelial lining of the capillaries causing thrombosis which leads to necrotic coagulation and destruction, disappearance of vascular smooth muscle leading to fibrosis of the ablated zone.[19]

All our patients underwent radiofrequency assisted conventional and endoscopic removal of the tumour with coagulation of the base. Although the lesions were not completely ablated the base was coagulated resulting in fibrosis of the affected area. All the excised lesions were sent for histopathological study which confirmed thinned out pseudostratified ciliated lining epithelium with lobules of dilated, congested capillaries and inflammatory infiltrates. Recurrence rate following excision ranges from 0% to 42%.[15,20] Smith et al found a recurrence rate of 42% and concluded that it was due to incomplete removal by biopsy and other ancillary procedures like cautery, silver nitrate application.[20] In our study the follow up period ranged from 6 months to 24 months with no recurrence noted in any of the patient. The lower recurrence rates in the present study might be attributed to complete excision of underlying perichondrium or periosteum with coagulation of the base using radiofrequency.

CONCLUSION

Lobular capillary hemangioma of the nasal cavity is a rare condition. It affects both sex with epistaxis and nasal obstruction being the most common presenting complaint. Nasal septum especially the anterior part is the most common site of origin. CT scan is a reliable investigative modality to differentiate it from other lesions of the nasal cavity. Endoscopic or local excision using radiofrequency results in no complications and minimal recurrence.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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