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Endoscopic evaluation of bleeding points in epistaxis: a cross sectional study

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ABSTRACT

Background: Epistaxis is one of the most common emergencies that come to casualty department and of which some are difficult to treat. Rigid nasal endoscopy plays a paramount role in managing epistaxis. The present study was done to map bleeding points with regard to its location, to identify the common areas and to discover the hidden areas.
Methods: 56 patients with epistaxis were examined using nasal endoscope under local anaesthesia. Only those patients in whom, the cause for epistaxis could not be made out on anterior and posterior rhinoscopy were included in the study.
Results: 18 (32%) patients had bleeding point in right side and 24 (42.8%) patients it was in left side**.** 51.7% patients had bleeding point located on medial wall of nasal cavity and 19.6% patients had bleeding points on lateral wall of nasal cavity.
Conclusions: Nasal endoscopy plays a vital role in management of epistaxis. Most common bleeding point locations are on septum, near middle turbinate area.

Keywords: Epistaxis, Nasal endoscopy, Bleeding point, Cauterisation

INTRODUCTION

Epistaxis is one of the commonest otorhinolaryngologic emergencies. Though the majority of cases are settled easily, managing recurrent or continuous epistaxis is challenging. Nasal endoscopy plays a vital role in identifying the bleeding points and providing direct mode of treatment.[1]

The nasal cavity is extremely vascular. There is a rich vascular anastamoses between external carotid and internal carotid arteries. There are wide varieties of methods to control epistaxis like local pressure, topical vasoconstrictor, nasal packing, cauterization (chemical or electrical), embolisation or ligation of vessels.[2] Nasal endoscopy helps in examining the more difficult and hidden areas of nasal cavity. A successful identification and cauterisation of bleeding point will considerably decrease patient morbidities and hospital stay.

Though endoscopy is routine in a case of epistaxis, it's not uncommon to miss a bleeding point and to report as a normal study. Patient may come again with recurrent epistaxis. So for successful identification of bleeding points on endoscopy, a prior knowledge of common bleeding point locations are desirable.

So in this scenario present study was planned with objectives – to identify bleeding points by nasal endoscopy in epistaxis patients which were not identified during routine anterior and posterior rhinoscopy, to locate

them with respect to normal anatomical landmarks and to identify the common areas of bleeding points.

METHODS

In this cross sectional study 56 patients with history of epistaxis were selected from outpatient department, emergency department and as referral from other departments in P.K. Das institute of Medical Sciences. The study was conducted in patients attended the hospital from March 2013 to December 2016. Patients who were willing for rigid endoscopy were only included after taking an informed consent. In managing epistaxis first priority was given to control the epistaxis.

After a thorough history taking a detailed clinical examination was done. If no cause for bleeding seen on anterior and posterior rhinoscopy, rigid nasal endoscopy was done. 4 mm 0° and 30° rigid nasal telescopes were used. Prior to endoscopy, nasal mucosa were anaesthetised using 4% xylocaine with no adrenaline or decongestant drops.

A standard diagnostic nasal endoscopy was undertaken in three steps – first pass, second pass and third pass.[3] The endoscopy was done in least traumatic way with little pressure on endoscope tip to avoid any injury to mucosa. Nasal mucosa was searched for bleeding points or angiomas. If suspicious areas were seen, they were lightly swiped with a cotton swab to dislodge the clot and to provoke bleeding. The areas hidden behind a spur or a septal deviation were visualised using 30° endoscope. Freer's elevator were used to push the middle turbinate medially to see middle meatus and laterally to see upper posterior part of septum. The bleeding was controlled by a direct pressure application followed by cauterisation with silver nitrate or bipolar cautery.

When a well-defined bleeding site is identified, if it is cauterised satisfactorily then no further treatment is required. Sometimes there can be further bleeding from adjascent site, and then cauterisation of feeding vessel is also needed.

The identified bleeding spots are recorded in relation to the nearby normal anatomical landmarks. Data variables included demographic variables and anatomical location of bleeding points. The collected data was entered in MS excel and analysed using Epi info software. Data was analysed using proportions.

RESULTS

Endoscopy was done in fifty six patients with history of epistaxis. Mean age of the study population was 54.19±16.4 years ranging from 14 to 84 years. Majority of the population was in the age between 31-70 years. In this study 37 (66%) were males and 19 (33.9%) were females. Age sex distribution is given in Table 1.

Table 1: Age- sex distribution of the study population.

Age group	Male no (%)	Female no (%)	Total
11-30	2 (5.41)	2 (10.53)	4
31-50	11(29.73)	8(42.11)	19
51-70	15 (40.54)	7(36.84)	22
71-90	9 (24.32)	2(10.53)	11
Total	37(100)	19(100)	56

A positive source of bleeding was found in 78.5% (n=44) of the study population.

The distribution of anatomical location of bleeding points found in this study is given in Table 2.

Table 1: Distribution of bleeding points on endoscopy.

Sl No	Endoscopic location of bleeding point	Number of patients	Percentage (%)
1	Anterior to middle turbinate on septum	10	17.7
2	Posterior to middle turbinate on septum	12	21.4
3	Underside of spur	6	10.7
4	Posterior free end of septum	1	1.7
5	Over middle turbinate	4	7.1
6	Over inferior turbinate	3	5.3
7	In sphenoethmoidal recess	1	1.7
8	In inferior meatus	2	3.5
9	Over uncinate process	1	1.7
10	Nasal mass-polyp	1	1.7
11	Nasal mass-angiofibroma	1	1.7
12	Synechiae	1	1.7
13	Posterior wall of nasopharynx	1	1.7
14	No significant findings	12	21.4
	Total	56	100

In 18 (32%) patients bleeding point was found in right side and 24 (42.8%) patients it was in left side. There were 12 (21.4%) patients in whom we couldn't find any significant bleeding point, though there was deviated nasal septum with spur in 5 patients. In one patient the bleeding point was located on posterior wall of nasopharynx. One patient had bleeding point on free posterior boarder of septum.

In majority of patients (51.7%) had bleeding point located on medial wall of nasal cavity. Of which 10

patients had bleeding point located on septum anterior to the level of middle turbinate. 12 patients had bleeding point posterior to the level of middle turbinate on septum, posterior to bony cartilaginous junction (Figure 1). In 6 patients the bleeding points were located on underside of septal spur. One patient had bleeding point on free posterior boarder of septum. In 11 (19.6%) pateints the bleeding was from lateral wall of nasal cavity. Bleeding point was there over middle turbinate in 4 patients, over inferior turbinate in 3 patients, in inferior meatus in 2 patients, in sphenoethmoidal recess in one patient. One patient had bleeding point over uncinate process.

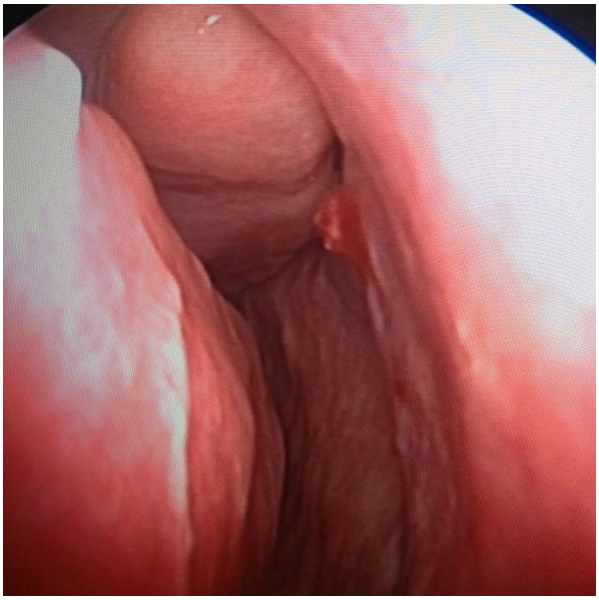

Figure 1: Bleeding point on septum at the level of middle turbinate.

Two patients had nasal mass which provoked bleeding; one was middle meatal polyp and the other was angiofibroma. One patient had synechiae between middle turbinate and septum.

DISCUSSION

Endoscopy has become a powerful tool in of management epistaxis. The comfort that the patient gets on stopping the bleeding without any nasal packing is incomparable. By knowing the common hidden areas of bleeding, makes endoscopy easy.

In this study, by doing endoscopy a successful identification of bleeding spots was possible in 78.5% of cases studied. This result is comparable to recent studies i.e Thornton et al and Chiu et al which showed that by doing nasal endoscopy bleeding points can be identified in majority of cases of epistaxis.[4,5]

In this study 51.7% of cases had medial wall of nasal cavity as the common source of bleeding point location. This is comparable to Tor in 2007, Varshney in 2005, Kumar in 2013 and Gupta in 2017 who identified nasal septum as the common bleeding point location.[5-8] But there are previous studies showing lateral wall of nasal cavity as common areas of epistaxis.[9-11] Lateral wall of nasal cavity have been identified as a bleeding location only in 19.6% of the study population in the present study. Identified bleeding points in lateral wall were over middle turbinate, uncinate process, inferior turbinate and in inferior meatus. The much concealed area - inferior meatus was visualised by pushing the inferior turbinate superiorly.

Table 2: Comparison of previous studies on bleeding points in epistaxis.

Authors, year	Bleeding point on lateral wall	Bleeding point on medial wall	No bleeding point seen
Elwany et al, 1996[9]	23	9	0
Safaya et al, 2000[10]	19 (30%)	14 (23.3%)	2 (3.3%)
Varshney, et al, 2005[6]	23 (29.55%)	50 (56.82%)	
Thornton et al, 2005[4]	29 (81%)	7 (20%)	7
Chiu, et al, 2007[5]	24%	70%	
Paul, et al, 2011[11]	13 (87.5%)	2 (12.5%)	3 (18.7%)
Kumar, et al 2013[7]	14	18	
Mahesh et al, 2014[13]	14 (28%)	14 (28%)	4 (8%)
Gupta et al 2017[8]	60 (33.3%)	73 (40.6%)	

Comparison of results with other reported studies is given in Table 3.

In the present study the majority of bleeding point located on septum was either anterior to middle turbinate (17.7%) or just posterior to middle turbinate (21.4%). This area of septum corresponds to the bony cartilaginous junction between septal cartilage and perpendicular plate of ethmoid or vomer. So the septal deviations in this part produce stretching of vessles around the bony cartilaginous junction which may predispose to epistaxis. These are the areas supplied by septal branch of sphenopalatine artery. They were visualised only after pushing the middle turbinate laterally to expose the olfactory area. As the septal branch of sphenoplatine artery runs submucosally, it is easy to bleed from thinned areas behind a septal deviation. Sometimes a trail of blood clot was seen between the middle turbinate and

septum, tracking to the bleeding point which gives a clue to the location.

If no definite bleeding point was identified cotton swab was used to gently wipe the mucosa to see the bleeding point. Angled endoscopes are useful for viewing the areas behind a spur or a deviation.

In one patient the bleeding point was at the free posterior boarder of septum, which was missed in earlier two endoscopy attempts, which shows the importance of doing endoscopy systematically and by using the angled scopes.

Though there was one patient with bleeding point in sphenoethmoidal recess, no other cases had bleeding points in Woodruffs area.[12]

It was successful to arrest the bleeding in all cases where bleeding points were located, using bipolar cautery. Two patients had readmission due to rebleeding. One patient was managed with repeat endoscopic cauterisation and the other required anterior nasal pack.

One patient had nasal mass in sphenopalatine area, which on further evaluation with CT scan, was diagnosed to juvenile nasopharyngeal angiofibroma. That patient had undergone surgical excision.

CONCLUSION

By doing endoscopy in epistaxis patients, majority of bleeding points can be identified even in local anaesthesia. This prevents the difficulties from nasal packing as well as decreases the hospital stay and other morbidities. Though many earlier articles showed lateral wall as the common source of epistaxis, in the present study septum is the most common source of bleeding, particularly middle third. With the help of angled scopes examining septum closely will give a positive result.

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