Is routine nasoendoscopy warranted in epistaxis patients after removal of nasal packing?

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ABSTRACT

Fiberoptic nasoendoscopy (FNE) is a powerful investigative tool in ear, nose, and throat practice in which its use in the management of epistaxis is varied among clinicians. The practice of assessing the nasal cavity after removal of nasal packs is common but its usefulness has not been evaluated. Therefore, we assessed the benefits of routine FNE after removal of nasal packs in epistaxis patients. Our study was performed retrospectively involving 62 adult patients admitted over a 6-month period between 2005 and 2006. Data regarding the emergent management of epistaxis cases on presentation, the use of FNE, and the final diagnosis and outcome of each patient were specifically investigated during the study. Anterior rhinoscopy was performed in 27 patients at initial presentation, of whom 45% (10/27) had anterior bleeding points identified. FNE examination after removal of nasal packs in eight patients yielded evidence of a posterior bleeding point in only one case (12.5%). Of those patients in whom anterior rhinoscopy revealed no anterior bleeding point at presentation (17/27), 12 patients went on to have FNE after removal of their nasal packs, and of these, 33% (4/12) of patients were found to have a posterior bleeding vessel. Overall, FNE was performed in 24 patients, of whom only 1 (1/24) had an active posterior bleeding vessel needing nasal repacking. Four patients (4/24) had prominent posterior vessels that required no intervention, 1 patient (1/24) had new pathology identified, and in the remaining 18 cases (18/24), FNE yielded no additional information to modify management. The routine performance of FNE in all epistaxis patients after pack removal does not appear to convey any additional benefit. We advocate the use of FNE when anterior bleeding has been excluded or bleeding is persistent and that careful nasal examination by anterior rhinoscopy should be the cornerstone of assessment.

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Epistaxis is the most common emergency in ear, nose, and throat (ENT) departments.[1] Epistaxis is typically minor and self-limiting; however, persistent bleeding that is not controllable by simple measures such as pressure may require nasal packing. The majority of cases of persistent epistaxis settle after placement of nasal packing.[2] Epistaxis may originate from a bleeding point anteriorly in the nose; this may be visible with anterior rhinoscopy and amenable to cautery. Bleeding originating more posteriorly in the nose may not be visualized with anterior rhinoscopy and, hence, in these instances may require use of either a rigid or flexible endoscope to effectively visualize the area.

Fiberoptic nasoendoscopy (FNE) is a powerful tool developed recently and is considered by many as an integral part of a complete nasal examination. FNE may be useful for inspecting the posterior nasal cavity, allowing views unachievable by simple anterior rhinoscopy. The performance of FNE, however, can be associated with complications including patient discomfort,[3] cross-contamination,[4] and potentially life-threatening exacerbation of bleeding and airway obstruction from detached FNE sheaths.[5]

Practice in managing patients after removal of nasal packs varies. If a patient has had epistaxis severe enough to require hospital admission it is reasonable to assess the nose after removal of the pack. This may facilitate treatment of a bleeding point with nasal cautery and perhaps identification of a previously unrecognized pathology that leads to epistaxis. Use of FNE after removal of packs is variable, some physicians having a low threshold for performing FNE after removal of nasal packs for acute epistaxis. Use of FNE has a significant cost implication, with not only capital costs of equipment purchase but also that of cleaning after use and maintenance. A review of the outcomes of FNE after removal of nasal packing was therefore undertaken to identify what benefit, if any, FNE conferred and whether it offered benefit in patients with no evident anterior bleeding point in determining a posteriorly located pathology.

PATIENTS AND METHODS

A retrospective review of patient admissions to a regional ENT unit with epistaxis was performed. Sixty-two adult patients were admitted to the unit over a

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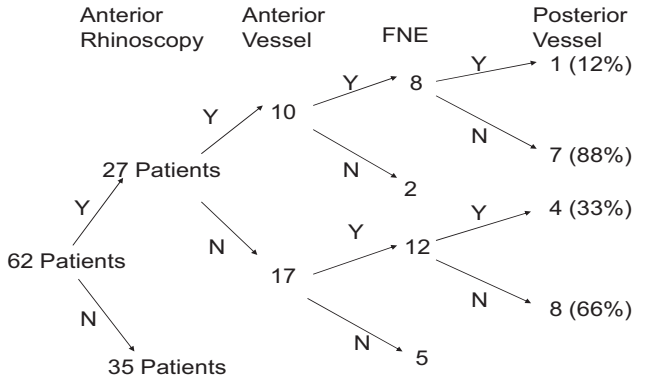

Figure 1. Distribution of 62 epistaxis patients by initial examination and diagnosis on admission.

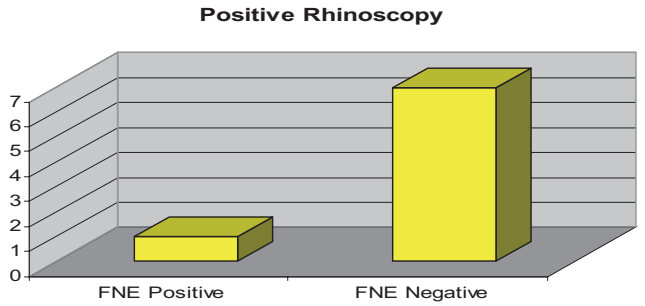

Figure 2. Fiberoptic nasoendoscopy (FNE) findings in patients with anterior bleeding points on anterior rhinoscopy.

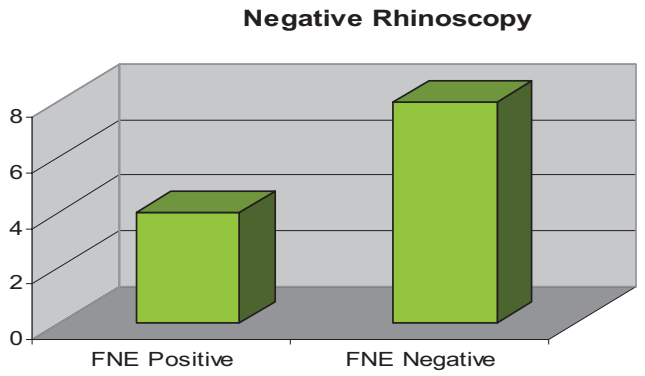

Figure 3. Fiberoptic nasoendoscopy (FNE) findings in patients with excluded anterior bleeding points on anterior rhinoscopy.

6-month period between 2005 and 2006. Cases were identified using the hospital's electronic records system and the hospital notes were reviewed after approval by the Research and Audit Department.

Data regarding the emergent management of the epistaxis cases on presentation, the use of FNE, and the final diagnosis and outcome of each patient were specifically examined during the study. Patients <16 years old were excluded, because they do not routinely undergo FNE in our department. The final data were collected and analyzed using Microsoft Excel (Microsoft Corp., Redmond, WA).

RESULTS

The mean age at presentation of patients was 68.8 years with a distribution of 37 male patients (60% of cases) and 25 female patients (40% of cases). No cases presented after recent nasal trauma. A large proportion of patients presented with additional comorbidities, including 37 (60%) with hypertension and 35 (56%) on some form of anticoagulant or antiplatelet therapy. Specifically, 23 (37%) were on aspirin, 5 (8%) were on clopidogrel, and 7 patients (11%) were on warfarin and of these, 18 (51%) had their treatment stopped on admission.

On presentation, 48 cases were managed with anterior nasal packs and 11 patients were managed with a posterior pack. In two cases, the bleeding stopped spontaneously and in a single case, the emergent management plan was not documented. No patients required surgical intervention to control bleeding.

Anterior rhinoscopy was performed in 27 patients at initial presentation. Of these patients, an anterior bleeding point was identified in 45% (10/27) of cases (Fig. 1). Of those with an anterior bleeding point at presentation, 80% (8/10) went on to have an FNE examination after removal of the nasal packs, which yielded evidence of a posterior bleeding point in only 1 case (12.5%; Fig. 2).

Of those patients in whom anterior rhinoscopy revealed no anterior bleeding point at presentation (17/27), 12 patients went on to have FNE after removal of their nasal packs (Fig. 1), and of these, 33% (4/12) patients were found to have a posterior bleeding vessel (Fig. 3).

Overall, flexible FNE was performed in 24 patients, out of whom only 1 (1/24) had an active posterior bleeding vessel that was managed with nasal repacking. In four patients (4/24), prominent posterior vessels were found as potential bleeding points that did not need further intervention. In 11 cases (11/24), no further useful information was obtained by performing the test, and in 7 cases (7/24) the view was obscured by hematoma, hence making thorough inspection impossible. In only 1 case (1/24), new pathology was diagnosed in the form of a nasal polyp.

DISCUSSION

Since its initial development in the late 1960s,[6] FNE has become a commonly performed procedure in the ENT department. It is used primarily as a method of evaluating the nasal passages and upper airways in a variety of clinical settings.

In the assessment of the nasopharynx, FNE has an established role in the diagnosis of posterior nasal tumors, which often present with persistent, unilateral

bleeding associated with nasal obstruction.[7] Common nasal neoplasia in adults include papillomas, hemangiomas, squamous cell carcinomas, esthesioneuroblastomas, melanomas, and adenocarcinomas, and in children, juvenile nasal angiofibroma is the most common neoplastic culprit of epistaxis.[7] The role of FNE, however, in the acute management of epistaxis, appears to be less clearly defined and documented, which has led to its varied use among clinicians.

FNE is most often performed using topical anesthetic lubricant to assist in the passage and patient comfort of the procedure. Topical vasoconstrictors are also often used to enhance the examination and slow some of the bleeding, although severe hemorrhage precludes its usefulness in bleeding point visualization, the priority in this situation being nasal packing and resuscitation. The examination of the nasal cavity is performed, paying attention to mucosal lesions or submucous masses within the middle meatus and nasopharynx and taking care not to dislodge clots into the hypopharynx and impacting the airway.[7]

Although FNE is generally considered to be a safe procedure, it can be associated with life-threatening complications such as airway obstruction from endosheaths as identified by our colleagues.[5] Well-documented symptoms of this procedure are pain and discomfort, which have been found to be minimally alleviated by topical anesthetics.[8] Symptoms ranging from light-headedness and nausea to fever and rigors have also been reported in this and other such endoscopic procedures of the upper airway.[3] The use of topical anesthetics can have adverse effects including allergic reactions. As a tool with a unit cost, the financial implications must also be considered against the diagnostic benefits. The practice of routinely performing this procedure therefore required some scrutiny.

In our study, we found that the majority of epistaxis cases were nontraumatic, with a large proportion on either anticoagulant (warfarin) or antiplatelet (aspirin or clopidogrel) therapy (56%) and 60% having hypertension as an incidental finding, as previously identified by other authors.[9,10] The advanced age of the patients in our study probably accounted for the higher frequency of these associated comorbidities that can predispose to epistaxis.

The use of nasal tampons (Merocel; Medtronic Xomed, Jacksonville, FL) to control epistaxis as the first line of treatment if conservative measures such as digital pressure fail is common in emergency departments in which clinicians may have limited formal ENT training.[11] This practice was found evident in our study too, with a large proportion (77%) of patients having anterior nasal packs placed at initial presentation in the emergency department. Anterior rhinoscopy was correctly used before packing in less than one-half of the patients at initial presentation (Fig. 1), although an attempt was made at topical cautery in 90% (9/10) of those patients with identified anterior bleeding points.

From our study we found that a large proportion of FNEs were being performed in the department with no additional diagnostic value. In a single case, FNE resulted in the diagnosis of a nasal polyp, which subsequently required further management.

In patients presenting with evidence of anterior bleeds, FNE identified an additional bleeding source in only one patient and even then, this information did not change the management plan because the patient was subsequently repacked. In patients presenting with clinical evidence of posterior bleeds at presentation, there seemed to be greater benefit of performing FNE, with a greater proportion (33%) of the scopes revealing a further bleeding point posteriorly. Of these, a previously unidentified pathology (nasal polyp) was found in 25% (¼) of cases. It was clear from the findings of our study that more training, particularly in the use of anterior rhinoscopy as an examination tool, was required of emergency department, junior ENTs, and other frontline staff in our center.

Anterior rhinoscopy is an important adjunct to the diagnosis and management of epistaxis that is often overlooked and underused.[11] Apart from its relative ease of performance and less invasiveness compared with FNE, in experienced hands it enables rapid evaluation of most anterior bleeds, which make up 90–95% of all acute presentations.[1] Furthermore, its use in excluding anterior bleeds at initial presentation would presumably make the performance of FNE thereafter more specific at diagnosing posterior bleeding points by reducing the test's false positive rate. We accept that the small numbers of patients used in our study make it inappropriate to draw absolute conclusions regarding the usefulness of FNE in epistaxis, but we believe that the identified trend provides an adequate platform on which to stimulate further study and possible future recommendations.

We advocate that FNE does not routinely need to be performed after anterior pack removal, because it is unlikely to yield additional information that would modify clinical practice. The use of FNE appears to be of most benefit when an anterior bleeding point is excluded by rhinoscopy, because it identifies a larger proportion of posterior nasal cavity bleeding points and underlying pathology, potentially leading to modified clinical practice. FNE allows identification of posterior bleeding points but does not facilitate therapeutic instrumentation.

CONCLUSION

In conclusion, we have found that the practice of performing routine FNE in all patients presenting with epistaxis after pack removal does not appear to convey

any additional benefit and is therefore not an effective way of using this procedure. We advocate that its use be limited to cases where anterior bleeding has been excluded or bleeding is persistent, suggestive of an underlying pathology and that careful inspection of the nose by anterior rhinoscopy should be the cornerstone of assessment.

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