Case Report/Case Series

Intractable Epistaxis Due to Isolated Primary Telangiectasias

Timothy Stoddard, MD, MS; Todd A. Loehrl, MD; Bryan C. Hunt, MD; David M. Poetker, MD, MA

IMPORTANCE Epistaxis is the most common otolaryngologic emergency in the United States. Most cases are controlled with first-line measures, but intractable epistaxis can be a challenging clinical problem requiring posterior nasal packing and surgical or endovascular intervention. Bleeding from nasal telangiectasias is well known in hereditary hemorrhagic telangiectasia, but there are no reports in the literature of recurrent epistaxis due to isolated telangiectasias not associated with systemic disease. This report describes a series of cases in which intractable epistaxis due to isolated primary telangiectasias was effectively controlled with bipolar electrosurgery.

OBSERVATIONS We describe a patient with intractable epistaxis that had failed management with posterior packing and embolization. We also report a series of 16 cases of epistaxis, 6 of which were intractable, in adults without hereditary hemorrhagic telangiectasia who received treatment between 2009 and 2012. These cases reveal a common pattern of bleeding from telangiectasias on the anterior septum (8 cases [42%]), nasal sidewall (3 [16%]), inferior meatus (2 [10%]), posterior septum (2 [10%]), nasal floor (2 [10%]), middle turbinate (1 [5%]), and inferior turbinate (1 [5%]).

CONCLUSIONS AND RELEVANCE Telangiectasias not associated with systemic disease are a previously unreported source of significant nasal bleeding that, when identified endoscopically, can be treated successfully with bipolar electrosurgery rather than with more invasive and costly surgical and endovascular measures.

Epistaxis is the most common otolaryngologic emergency in the United States, accounting for 1 in 200 emergency department visits annually. In most cases, the bleeding is easily controlled with hemostatic agents, anterior nasal packs, or chemical cauterization. In the few patients who continue to bleed, more aggressive treatment with posterior nasal packing, hospital admission, and surgical or endovascular intervention is frequently required. Contemporary surgical management of posterior epistaxis using transnasal endoscopic sphenopalatine artery ligation (TESPAL) and embolization of the internal maxillary artery have comparable success rates between 80% and 90%.

Telangiectasias are dilated, thin-walled blood vessels in the dermis and mucosal surfaces that usually present as small pink or red macular lesions with a punctate, linear, stellate, or lacy appearance. To date, there have been no reports describing primary telangiectasias causing significant epistaxis in patients without hereditary hemorrhagic telangiectasia (HHT).

Report of a Case

A 67-year-old man with a history of long-term warfarin therapy after aortic valve replacement presented with a 2-week history of recurrent left-sided epistaxis that began spontaneously at rest. The patient initially went to an outside emergency department, and an inflatable nasal pack was placed in the left nasal passage. He was discharged but returned several hours later with recurrent bleeding. A Foley catheter (Bard Medical) was then inflated behind the nasal pack with adequate hemostasis.

The patient was admitted for 7 days and underwent embolization of the left sphenopalatine artery system. The packing was removed 2 days after embolization and he was discharged. Several days later, the bleeding resumed and he returned to the outside hospital; a second inflatable nasal pack was placed and he was transferred to our emergency department. His international normalized ratio determined on presentation was 4.1, and there was no active bleeding.

The patient was then taken to the operating room for endoscopic evaluation under anesthesia. A pulsatile telangiectasia was found on the left anterior nasal septum just inferior to the cribriform plate. It bled profusely with minimal manipulation and was cauterized with bipolar electrosurgery, with no further hemorrhage. No other telangiectasias or bleeding sources were identified in either nasal cavity. The patient was discharged 2 days later once his international normalized ratio was stabilized within the therapeutic range of 2.0 to 3.0, and he had no subsequent epistaxis.

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Between 2009 and 2012, a total of 16 patients in our institution with no personal history, no family history, and no other features of HHT received treatment for epistaxis from a bleeding primary telangiectasia (Table 1). In 6 of these cases (38%), multiple attempts at hemorrhage control had been performed before endoscopic identification of the telangiectasia in the operating room or clinic. The patients were predominantly men (10 [62%]) aged 41 to 86 years, and 6 patients (38%) were receiving warfarin or clopidogrel for cardiac comorbidities. Only 2 patients (12%) had been using topical nasal corticosteroid sprays in the 12 months before the onset of epistaxis.

The telangiectasias in this series were identified by their characteristic appearance (Figure 1). Isolated primary telangiectasias were identified as raised red lesions containing a lacy network of blood vessels.

### Table 1. Case Series of Intractable Epistaxis Due to Isolated Primary Telangiectasias

<table>
<thead>
<tr>
<th>Patient, Sex/Age, y</th>
<th>Treatment Location</th>
<th>First-line Attempt</th>
<th>Anticoagulation</th>
<th>Telangiectasia Location</th>
<th>Intervention</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>M/70 Inpatient/OR</td>
<td>Bipolar rhino, silver nitrate, 5 applications</td>
<td>None</td>
<td>None</td>
<td>L middle meatus</td>
<td>Bipolar electro (failed), monopolar electro + bovine collagen + thrombin</td>
<td>Resolved</td>
</tr>
<tr>
<td>F/66 Clinic</td>
<td>None</td>
<td>None</td>
<td>Warfarin</td>
<td>L inferior meatus</td>
<td>Bipolar electro</td>
<td>Resolved</td>
</tr>
<tr>
<td>M/54 ED, clinic, patient/OR</td>
<td>Bipolar rhino, PVA sponge</td>
<td>None</td>
<td>None</td>
<td>L anterior septum</td>
<td>Bipolar electro</td>
<td>Resolved</td>
</tr>
<tr>
<td>M/61 Clinic</td>
<td>None</td>
<td>None</td>
<td>2 in R anterior septum</td>
<td>None</td>
<td>None</td>
<td>Resolved</td>
</tr>
<tr>
<td>F/65 Clinic</td>
<td>None</td>
<td>None</td>
<td>R anterior septum</td>
<td>Silver nitrate; bipolar electro (2 wk later)</td>
<td>Recurred once, then resolved</td>
<td></td>
</tr>
<tr>
<td>F/63 Clinic</td>
<td>None</td>
<td>None</td>
<td>L nasal floor, R anterior septum</td>
<td>Bipolar electro</td>
<td>Resolved</td>
<td></td>
</tr>
<tr>
<td>M/41 Clinic</td>
<td>None</td>
<td>None</td>
<td>L inferior meatus</td>
<td>Bipolar electro</td>
<td>Resolved</td>
<td></td>
</tr>
<tr>
<td>M/67 Clinic</td>
<td>ORC, 2 applications</td>
<td>None</td>
<td>None</td>
<td>2 in L posterior septum</td>
<td>Bipolar electro</td>
<td>Resolved</td>
</tr>
<tr>
<td>M/79 Inpatient</td>
<td>Silver nitrate, 3 applications, bipolar rhino, L PVA sponge</td>
<td>Warfarin</td>
<td>None</td>
<td>L middle meatus, inferior turbinate</td>
<td>Bipolar electro + bovine collagen with thrombin; 2nd bipolar electro</td>
<td>Recurred once, then resolved</td>
</tr>
<tr>
<td>M/86 Clinic</td>
<td>None</td>
<td>None</td>
<td>L nasal sidewall</td>
<td>Bipolar electro</td>
<td>Resolved</td>
<td></td>
</tr>
<tr>
<td>M/79 Clinic/OR</td>
<td>Bipolar rhino, septal silver nitrate</td>
<td>Warfarin</td>
<td>R middle turbinate</td>
<td>TESPAL and bipolar electro</td>
<td>Resolved</td>
<td></td>
</tr>
<tr>
<td>M/67* Inpatient/OR</td>
<td>Rhino, embolization of sphenopalatine artery</td>
<td>Warfarin</td>
<td>None</td>
<td>L anterior septum</td>
<td>Bipolar electro + bovine collagen with thrombin</td>
<td>Resolved</td>
</tr>
<tr>
<td>M/76 Clinic</td>
<td>None</td>
<td>None</td>
<td>Clopidogrel</td>
<td>L posterior nasal floor</td>
<td>Bipolar electro</td>
<td>Resolved</td>
</tr>
<tr>
<td>F/48 Clinic</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>L septum</td>
<td>Biopsy, silver nitrate</td>
<td>Resolved</td>
</tr>
<tr>
<td>F/62 Clinic</td>
<td>None</td>
<td>None</td>
<td>R midseptum</td>
<td>Biopsy, silver nitrate</td>
<td>Resolved</td>
<td></td>
</tr>
<tr>
<td>F/71 Clinic</td>
<td>None</td>
<td>None</td>
<td>Warfarin</td>
<td>L inferior turbinate</td>
<td>Silver nitrate</td>
<td>Resolved</td>
</tr>
</tbody>
</table>

Abbreviations: ED, emergency department; electro, electrosurgery; L, left; OR, operating room; ORC, oxidized regenerated cellulose; PVA, polyvinyl alcohol; R, right; rhino, inflatable nasal packing; TESPAL, transnasal endoscopic sphenopalatine artery ligation.

* Case reported.
biopsied, revealing sinonasal mucosa with ectatic thin-walled vessels, confirming the diagnosis of telangiectasia (Figure 2). Telangiectasias were most commonly located on the anterior septum (8 cases [42%]), nasal sidewall (3 [16%]), inferior meatus (2 [10%]), posterior septum (2 [10%]), nasal floor (2 [10%]), middle turbinate (1 [5%]), and inferior turbinate (1 [5%]) (Table 2).

In 12 of the 16 patients (75%), bleeding from the telangiectasia was controlled with bipolar electrosurgery in the operating room (4 cases [25%]) or in the clinic (8 [50%]). The decision to proceed to the operating room was based on anticipated heavy bleeding in patients for whom general anesthesia was considered appropriate. Before cauterization of the telangiectasias, the nasal mucosa was anesthetized by placing cotton balls soaked in lidocaine, 4%, in the affected nasal cavity for 5 minutes. The cauterized telangiectasia was covered with an absorbable hemostatic agent, such as oxidized regenerated cellulose (Surgicel; Ethicon Inc) or gelatin granules and human thrombin (Floseal; Baxter Healthcare Corp). In one patient (6%), epistaxis had ceased on presentation to the clinic, and the identified telangiectasia was not treated; no subsequent bleeding occurred. Chemical cauter with silver nitrate was used in 4 patients (25%), but bleeding recurred 2 weeks later in one of these patients (6%) and bipolar electrosurgery was used successfully.

### Discussion

This case series demonstrates the challenges of managing intractable epistaxis. The case described involved 3 emergency department visits, 10 days of hospitalization, an embolization procedure, and endoscopic examination under anesthesia before the source of bleeding was identified and treated. In this case, bipolar electrosurgery was the simplest, most cost-effective therapy used, but it required precise identification of the bleeding point.

Contemporary management of intractable epistaxis usually involves TESPAL or arterial embolization. Both techniques have comparable success rates, and selecting a modality depends on patient comorbidity, institutional expertise, patient preference, use of anticoagulation, and health care costs. It is estimated that TESPAL costs between $6000 and $7500 compared with approximately $12 000 for arterial embolization in 2005 US dollars. The estimated cost of nasal endoscopy with bipolar electrosurgery in our clinic or operating room is $1900, not including associated facility and anesthesia fees.

There is disagreement in the literature about the most common locations for posterior bleeding sites in intractable epistaxis. In a prospective study of 50 consecutive adult cases of idiopathic posterior epistaxis, most (70%) of the bleeding sites were found on the septum, with 36% on the upper septum and 34% on the lower septum. Earlier work, however, reported that most posterior bleeding occurred on the lateral nasal wall, particularly in a groove of mucosa on the inferolateral aspect of the middle and inferior turbinates. The distribution and appearance of endonasal telangiectasias causing epistaxis have been described in patients with HHT; to our knowledge, however, no similar mapping of telangiectasias in patients without HHT who have epistaxis has been performed.

The patients in the present series demonstrated only 1 of the 4 Curacao criteria for the diagnosis of HHT: intractable epistaxis, multiple telangiectasias in characteristic sites (lips, oral cavity, fingers, and nose), visceral lesions, and family history. The HHT diagnosis is definite in a patient meeting 3 of the criteria but unlikely in patients with only 1 of them. Epistaxis due to endonasal telangiectasias has been reported in patients with the combination of calcinosis, Raynaud phenomenon, esophageal dysmotility, sclerodactyly, and telangiectasia (CREST). However, there have been no reports of epistaxis arising from endonasal telangiectasias in other systemic diseases associated with telangiectasias, such as dermatomyositis, systemic lupus erythematosus, cirrhosis, or ataxiatelangiectasia syndrome.

Topical corticosteroids have well-known local adverse effects when applied to the skin, including skin thinning, telangiectasias, striae, and bruising. However, the long-term administration of intranasal corticosteroids has not been associated with mucosal thinning or the formation of isolated telangiectasias. It is unlikely that the 2 patients in our series who had been using nasal corticosteroids prior to the onset of epistaxis acquired telangiectasias from using the sprays. Epistaxis can be associated with the application of intranasal corticosteroids, but the mechanism for bleeding is thought to be mechanical trauma to the septal mucosa and not formation of telangiectasias.

The successful management of epistaxis in this case series required identifying the precise bleeding sites endoscopically and applying bipolar electrosurgery to the telangiectasia.
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Electrosurgery appears to be more effective than silver nitrate at controlling bleeding telangiectasias, perhaps because it more effectively penetrates the mucosa to reach the numerous vessels within the telangiectasia. In addition, electrosurgery allows more precise treatment of the bleeding source with less risk of traumatizing adjacent mucosa with the inadvertent spread of silver nitrate. It is important to be vigilant for telangiectasias during nasal endoscopy, particularly those high on the anterior septum, when localizing a bleeding site in anterior or posterior epistaxis. Bipolar electrosurgery provides a relatively simple, cost-effective treatment option for the isolated bleeding telangiectasia.

ARTICLE INFORMATION

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Study concept and design: Loehrl, Poetker.

 Acquisition of data: Stoddard, Loehrl.

 Analysis and interpretation of data: Stoddard, Hunt.

 Drafting of the manuscript: Stoddard.

 Critical revision of the manuscript for important intellectual content: All authors.

 Administrative, technical, or material support: Stoddard.

 Study supervision: Loehrl, Poetker.

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REFERENCES


