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Study of hemostasis procedures for posterior epistaxis

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ABSTRACT

Objective: Hemostasis is difficult in patients with bleeding emanating from the deep regions in the nasal cavity; however, there is no standard treatment method. We studied hemostasis procedures in patients who visited our outpatient department and presented with idiopathic epistaxis extending from the posterior nasal cavity to Kiesselbach's area.

Methods: The subjects were patients with epistaxis who visited our hospital between June 2008 and May 2010. We asked specific questions at the time of the hospital visit and examined patients using a nasal speculum, a flexible endoscope, and a rigid endoscope (0 or 70 degree) to identify bleeding sites. Hemostasis using electrocoagulation was selected as the first-line therapy for patients in whom a bleeding point had been identified, whereas hemostasis using a gauze tampon was performed in patients in whom the bleeding point was unknown. The subjects were analyzed by multivariate logistic regression analysis.

Results: The bleeding point was unknown in most cases of recurrent posterior epistaxis. Electrocoagulation was the best hemostasis procedure. Identifying the bleeding points as much as possible and performing electrocoagulation at these sites was the preferred procedures.

Conclusion: We propose the treatment procedure for refractory epistaxis. When it is difficult to identify a bleeding point in a patient with refractory epistaxis due to a deviated nasal septum, a bleeding point should be identified after septoplasty; for bleeding from the sphenopalatine artery region, electrocoagulation or endoscopic cauterization of the sphenopalatine artery should be performed.

1. Introduction

Epistaxis is one of the most frequently occurring emergent otorhinolaryngological conditions. Although hemostasis can be achieved by treatment in outpatient departments in many cases, we have experienced some difficult-to-treat cases involving patients with recurrent bleeding when the bleeding site is deep. Hemostasis using a Bellocq's tampon or arterial embolization is performed in patients when achieving hemostasis was difficult; with recent advances in endoscopic sinus surgery, endoscopic cauterization of the sphenopalatine artery is now performed for bleeding from the sphenopalatine artery region. Some changes in hemostasis techniques for epistaxis have been initiated; however, there is no standard treatment method. We evaluated hemostasis procedures in patients with idiopathic epistaxis emanating from the posterior nasal cavity to Kiesselbach's area.

2. Materials and methods

2.1. Institutional review board statement

The Jikei University Hospital Ethics Committee Review: 25-073, 7208.

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2.2. Subjects

Of 586 patients with epistaxis who visited our hospital during a 2-year period between June 2008 and May 2010, the included subjects were 167 patients with idiopathic posterior epistaxis. Patients with traumatic epistaxis, bleeding from a tumor, postoperative epistaxis, Osler's disease, bleeding from Kiesselbach's area, and children of 15 years of age or younger were excluded. Children were excluded because epistaxis digitorum accounts for a majority of the cases of epistaxis in children and recurrent bleeding occurs repeatedly due to nose-picking [1,2]. Patients with traumatic epistaxis were excluded because aggressive therapy is not required when there is no bone fracture. Patients with traumatic epistaxis with bone fracture [3], bleeding from a tumor, postoperative epistaxis [4], or Osler's disease [5] were excluded because they require different treatment methods and hemostasis techniques. Patients with epistaxis from Kiesselbach's area were excluded because a few patients have difficulty in hemostasis and hemostasis effect by electrocoagulation becomes significant [6] based on the number of patients.

2.3. Investigation at initial examination

Patients were interviewed to obtain baseline data, such as age and sex, and were queried regarding their use of oral antiplatelet (e.g., aspirin) or anticoagulant (e.g., warfarin, heparin) drugs. Patients were also interviewed to determine any history of hypertension, blood diseases (Osler's disease, idiopathic thrombocytopenic purpura [ITP], thrombotic thrombocytopenic purpura [TTP], hemophilia, von Willebrand disease), allergic rhinitis, chronic sinusitis, nasal/paranasal sinus surgery, trauma, or nasal/paranasal sinus tumors. We examined patients for the presence or absence of a deviated nasal septum, and to determine whether bleeding originated from the convex or concave side of the deviated nasal septum, and for the presence of intranasal tumors or polyps.

2.4. Bleeding site identification method and hemostasis techniques

First, using a nasal speculum, we examined bleeding points within the range of clear vision, such as Kiesselbach's area. If this failed to identify the bleeding sites, blood in the nasal cavity was removed by suction, and a more detailed examination was performed using a flexible endoscope, or a 0-degree rigid endoscope. If bleeding continued, cotton wool was inserted into the posterior nasal cavity to reduce the blood flow to the pharynx. This prevented the cough reflex caused by blood influx and enabled endoscopic intranasal observation to continue. At the time of examination, patients were placed in a normal sitting position; therefore, blood flowed from cranial to caudal, resulting in retention of blood at the floor of the nasal cavity. Bleeding sites were examined from cranial to caudal while removing blood by suction, in the order of superior olfactory cleft, superior middle meatus, olfactory cleft, middle meatus, posterior common nasal meatus, and inferior meatus. If bleeding points could not be identified, the lateral walls of the nasal cavity, such as the posterior middle meatus, were observed using a 70-degree rigid endoscope. When blood vessel engorgement was found, the site was aspirated or scraped with a cotton swab to confirm bleeding.

The bleeding sites were classified according to their anatomic locations: Kiesselbach's area, olfactory cleft, middle meatus region, inferior meatus region, others, or bleeding point unknown. The middle nasal concha, middle meatus, and posterior nasal cavity (superior posterior end of the inferior concha) were included in the middle meatus region, whereas the inferior nasal concha and inferior meatus were included in the inferior meatus region. The bottom of the common nasal meatus and posterior end of the nasal septum were classified as others.

Electrocoagulation was performed as the first-line hemostasis procedure using an endoscope in patients in whom electrocoagulation under direct vision was not possible. Monopolar forceps were used on bleeding sites where hemostasis using bipolar forceps (straight/curved) was difficult. When performing electrocoagulation was difficult or the bleeding points were unknown, a gauze tampon was used, followed by the administration of antimicrobial agents. When it was judged that a certain level of bleeding was continuing despite the use of a gauze tampon, an indwelling bladder catheter was placed in the epipharynx along with the use of a gauze tampon to achieve hemostasis (hereafter called a balloon tamponade). When bleeding was stopped, patients were followed either with no further treatment or conservative hemostasis using oxidized cellulose (SURGICEL Absorbable Hemostat1, Ethicon Inc., Somerville, NJ, USA).

2.5. Investigation at reexamination

Patients were instructed to visit the hospital approximately 1 week later and were examined for recurrent bleeding. Intranasal observation was performed to confirm hemostasis, and gauze tampons, if used, were removed. Patients visited the hospital when difficult-to-stop recurrent bleeding occurred within 1 week and identification of bleeding sites and hemostasis was repeated.

2.6. Statistical analysis

SPSS 19 for Windows (International Business Machines Corporation, Armonk, NY, USA) was used for statistical analyses with a significance level of 5%.

With regard to factors for recurrent bleeding after hemostasis, a stepwise logistic regression analysis was conducted with recurrent bleeding as a dependent variable and the baseline characteristics of patients, medical history, bleeding sites, and hemostasis procedures as independent variables. The baseline characteristics of patients included information regarding sex, age, oral use or non-use of antiplatelet drugs, and whether or not bleeding originated from the convex side of deviated nasal septum. The medical history included the presence or absence of hypertension, blood diseases, allergic rhinitis, chronic sinusitis, or nasal/paranasal sinus surgery. Bleeding sites were classified as olfactory cleft,

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