ORIGINAL CONTRIBUTION

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Use of nasal bivalve septal teflon splint for the treatment of recurrent epistaxis in patients undergoing anticoagulant therapy*

Gaffar Aslan[1], Melih Güven Güvenç[2], Tarık Şapçi[2], Süleyman Candan[2]

[1] Department of ENT, Florence Nightingale Hospital, Istanbul, Turkey
[2] Department of Otorhinolaryngology, Medical Faculty, Istanbul Bilim University, Istanbul, Turkey

SUMMARY

Management of recurrent epistaxis in patients on anticoagulant therapy is a challenging problem. In this article, we report our experience concerning the use of bivalve septal teflon splint (BSTS) for the treatment of recurrent mild epistaxis in a group of patients who underwent anticoagulant therapy after cardiac valve surgery. The study included 18 patients whose epistaxes recurred despite standard methods such as local pressure, vasoconstrictors, sedation, packing or cauterization. BSTS was sutured on the both sides of the nasal septum and held in place during one month. Epistaxis was controlled in all of the patients.

We believe that the use of BSTS is an effective, easily applied, non-traumatic, well-tolerated additional method for the treatment of recurrent mild epistaxis in patients undergoing anticoagulant therapy, when other conventional treatments fail. Further controlled studies with larger groups are warranted in order to further evaluate this method.

Key words: epistaxis, recurrence, bivalve septal teflon splint, anticoagulant therapy

INTRODUCTION

Epistaxis is a frequent problem in routine otorhinolaryngology practice. Up to 60% of the population will have at least one episode of epistaxis in their lifetime. Fortunately, only 6% of that population requires medical treatment [(1).] From a clinical point of view, epistaxes are classified as either anterior or posterior, with significant differences in the clinical presentation and prognosis due to the anatomy of the blood supply of the nose [(2)]. Between 90 and 95% of epistaxes are anterior, and the great majority of these arise from Little's area [(3)].

Recurrent epistaxis in patients on anticoagulant therapy is a challenging entity. Epistaxis is very common in patients who undergo anticoagulant therapy after cardiac valve surgery, or in the treatment of atrial fibrillation and deep vein thrombosis. In this group of patients, the epistaxis is often mild, and arises frequently from multiple foci. Classical techniques including nasal packing and cauterization might be insufficient to prevent this type of epistaxis. On the other hand, discontinuing the anticoagulant therapy or lowering its dose carries the risk of thromboemboly and therefore is avoided. In this article, we report our experience of bivalve septal teflon splint (BSTS) use for the treatment of recurrent mild epistaxis.

MATERIALS AND METHODS

Patients

The clinical records of 18 patients admitted to ENT clinic because of recurrent epistaxis were reviewed. They had all previously undergone cardiac valve surgery (mitral valve: 7, aortic valve: 5, and mitral and aortic valves: 6). Mechanical prostheses were used for the cardiac valve replacement. The age of the patients ranged from 22 to 63 years (mean: 47.38), and the male-female ratio was 2. All of the patients were on anticoagulant therapy (warfarin). They had no other known factors predisposing to bleeding. Patients with intractable epistaxis despite standard methods such as local pressure, vasoconstrictors, sedation, packing or cauterization whose bleeding foci were in the anterior half of the septum were included into the study. Blood samples were taken regarding the coagulation parameters at the time of the intractable epistaxis; INR (international normalized ratio) values varied between 2.6 and 3.8 (mean: 3.25). The exclusion criteria were the presence of nasal septal deviation making impossible the placement of BSTSs or space-occupying lesions such as polyps, tumours and posterior epistaxis.

Application

After the detection of bleeding foci via nasal endoscopy, 2% pantocaine and 0.0125 mg/ml epinephrine soaked cottons were introduced into both of the nasal cavities, and held in place for 10 minutes. Then, a bivalve septal teflon splint (BSTS; Xomed,

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Figure 1. Bivalve septal teflon splint is seen.

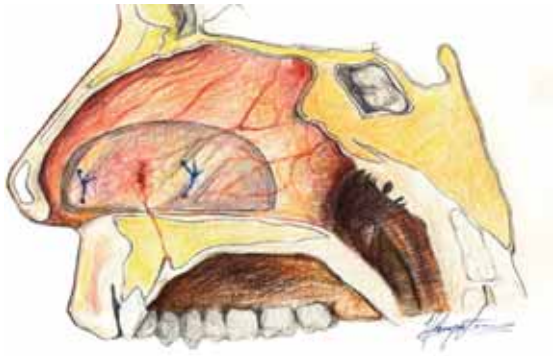

Figure 2. Depicted is bivalve septal teflon splint fixed to nasal septum via sutures covering nasal mucosa with bleeding-foci.

Jacksonville, FL, USA; thin 0.25 mm, oversize 6 cm, Figure 1) was reshaped using a pair of scissors according to the size of the septum and the bleeding foci, and fixed to the septum bilaterally by two sutures of 4/0 prolene, one anteriorly and the other one as posteriorly as possible (Figure 2). No antibiotics were given after the application. The patients were instructed to perform nasal irrigation at least three times a day. On the weekly follow-up, crusting was removed and as BSTS is transparent, the healing of the mucosa and the bleeding foci were easily evaluated. After four weeks, the sutures were removed and BSTSs were carefully withdrawn.

RESULTS

After the application, two patients complained of pain in the first 24 hours, which was managed by acetaminophene 500 mg three times a day. No pain requiring an analgesic was experienced after the first day. Although all of the patients had a foreign body sensation in their noses, they all tolerated BSTS very easily. Almost all of the patients had a mild crusting in their noses, and a nasal obstruction, which was managed by daily nasal irrigation and physical removal on the weekly follow-up. No infection requiring antibiotics occurred. The patients never gave up anticoagulant therapy and had always an appropriate blood INR. There was no epistaxis when BSTSs were in place. Similarly, in the follow-up period of 3 to 9 months (mean: 5,22 months) after the removal of BSTSs, no recurrent epistaxis was seen.

DISCUSSION

Anticoagulant management includes agents such as heparin and warfarin. Warfarin is the most frequently prescribed oral anticoagulant. Its anticoagulant effect is based on the inhibition of the synthesis of vitamin K-dependant coagulation factors which are prothrombin (factor II), factor VII, IX and X. Patients who have already undergone cardiac valve surgery usually undergo anticoagulant therapy. Temporary discontinuation of anticoagulants increases the risk of valve thrombosis and systemic emboli [4,5]. The optimal anticoagulation strategy should minimize the risk of thromboembolism, without causing excessive postoperative bleeding. Target INR value is stated to be 2.5 to 4 for mechanical prosthetic valves, depending on the thrombogenicity of the prosthetic valve used, and patient-related risk factors [6]. However patients undergoing anticoagulant therapy often experience recurrent epistaxis, even if INR value is within the suggested range, as seen in our cases; and traditional methods such as local pressure, vasoconstrictors, sedation, packing or cauterization might fail to prevent recurrent epistaxis in these patients. Furthermore, nasal packing causes nasal obstruction decreasing the quality of life of the patient, and may also lead to apneas [7]. Infection might occur in the nasal cavity and paranasal sinuses, and even though not frequent, a toxic shock syndrome related to *Staphylococcus* infection might be seen [8]. Cauterization might be effective for patients with a single bleeding focus and without anticoagulation, however as the predisposition to bleeding due to anticoagulant therapy remains, multiple cauterization might fail; and recurrent packing might also traumatize the nasal mucosa and even create new bleeding foci leading to a vicious circle.

Intranasal splints are widely used in septoplasty, septal perforation repair and the treatment of septal haematoma. Owing to their structure, they can be held in place for a long period and are very well tolerated. Taking into account the vicious circle encountered during the management of recurrent mild epistaxis in patients on anticoagulation and the properties of intranasal splints, we elected to use BSTSs.

BSTSs were very well tolerated by all the patients, but some experienced a foreign body sensation in their nose and moderate local pain. No complications were noted. The pressure effect of BSTSs was enough to control mild epistaxis. Comparing to nasal packing or recurrent cauterization, a much better quality of life was obtained. No antibiotics were given to our patients and none of them had toxic shock syndrome. Nevertheless we should keep in mind that 18 patients are not sufficient to have a definitive opinion on this complication, and further studies with larger number of patients are required in order to assess the actual risk of toxic shock syndrome. The use of BSTSs also allowed the patients to continue anticoagulant therapy, which is substantial to prevent thromboemboly. Mild crusting in the nasal cavity was easily managed by nasal irrigation and physical removal. As the BSTS is transparent,

the nasal mucosa could be observed during the follow-up period. Meanwhile, the septum was protected from any traumatic effects.

However this technique is not appropriate in patients with severe septal deviation as the homogeneous pressure effect of BSTS cannot be provided in these patients. Posterior epistaxes might not be effectively treated by BSTS due to the relative lack of pressure effect in posterior septal area, which is another drawback of this method.

In conclusion, we believe that the use of BSTS is an effective, easily applied, non-traumatic, well-tolerated and complementary method for the treatment of recurrent mild epistaxis in patients undergoing anticoagulant therapy when other conventional treatments fail. Further controlled studies with larger groups are warranted in order to evaluate the exact clinical value of this method.

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Dr. Gaffar Aslan
Florence Nightingale Hastanesi,
KBB Kliniği, No:290
Abide-i Hürriyet Caddesi 34381
Çağlayan, Istanbul
Turkey

Tel: +90 212 2244950
Fax: +90 212 224 4982
E-mail: cgaslan@hotmail.com