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Original Article

Microwave ablation versus bipolar electrocautery in patients with idiopathic epistaxis

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ABSTRACT:

Background: Epistaxis is classified as anterior or posterior depending upon the primary bleeding site and is thought to be more common in males. The present study compared microwave ablation versus bipolar electrocautery in patients with idiopathic epistaxis. **Materials & Methods:** 50 patients with idiopathic recurrent epistaxis of both genders were randomly divided into 2 groups of 25 each. Group I was MWA group and group II was bipolar electrocautery group. Duration of bleeding, site of bleeding and the bleeding sites were assessed. **Results:** Bleeding site was Kiesselbach's area seen in 2 in group I and 3 in group II, olfactory cleft 7 in group I and 8 in group II, middle and posterior nasal septum 8 in group I and 5 in group II, middle meatus region 6 in group I and 6 in group II, inferior meatus region 1 group I and 2 in group II and others 1 each in group I and II. Time to achieve successful hemostasis was 2.5 minutes in group I and 4.3 in group II. VAS on day 1 was 2.7 in group I and 4.5 in group II and on day 2 was 0.91 in group I and 2.1 in group II. Recurrent bleeding was seen in 3 in group I and 5 in group II. The difference was significant ($P < 0.05$). **Conclusion:** Microwave ablation is a favorable treatment option for patients with idiopathic recurrent epistaxis.

Key words: idiopathic recurrent epistaxis, primary bleeding, Microwave ablation

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INTRODUCTION

Idiopathic recurrent epistaxis is one of the most frequently occurring emergent otorhinolaryngological conditions.[1] Although hemostasis can be achieved by treatment in outpatient departments in many cases, we have encountered some difficult-to-treat cases involving patients with recurrent bleeding. Conventional management pathways dictate that the patient be initially resuscitated, and if the bleeding site cannot be identified, then anterior and posterior nasal packing should be done to arrest the bleeding.[2]

Epistaxis is classified as anterior or posterior depending upon the primary bleeding site and is thought to be more common in males.[3] Anterior epistaxis is more common in children and young adults, whereas posterior nasal bleeding is more often seen in older adults with hypertension or arteriosclerosis.[4] In the majority of children, spontaneous haemorrhage is almost always venous and originates from Little's area, the anterior region of the nasal septum, where a number of arteries anastomose with each other forming a plexus of vessels (Kiesselbach's plexus) under the thin mucosa. Bleeding often results when this region is exposed to dry air or minor trauma. The subsequent crusts and scabs can then cause itching, which in turn leads children to traumatise the area again by picking and rubbing.[5]

Microwave ablation (MWA) is a relatively new technique which has been used intraoperatively to achieve hemostasis at surgical margins in laparotomy. The use of either bipolar cautery with suction or suction monopolar cauterization is well established for the treatment of recurrent epistaxis with recent

advances in endoscopic sinus surgery.[6] The present study compared microwave ablation versus bipolar electrocautery in patients with idiopathic epistaxis.

MATERIALS & METHODS

The present study consisted of 50 patients with idiopathic recurrent epistaxis of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. Patients were randomly divided into 2 groups of 25 each. Group I was MWA group and group II was bipolar electrocautery group. Duration of bleeding, site of bleeding, concomitant comorbidities were recorded. The bleeding sites were classified according to their anatomical locations: Kiesselbach's area, the middle and posterior nasal septum, olfactory cleft, middle meatus region, inferior meatus region, and others.

Primary outcomes were the proportion of patients in each group whose bleeding had stopped within 24 hours after treatment and time to achieve successful hemostasis. Secondary outcomes were the rebleeding rate after 3 days, 1 and 12 weeks, and 6 months and complications. Results were assessed statistically. P value <0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Method	MWA	Bipolar electrocautery
M:F	15:10	13:12

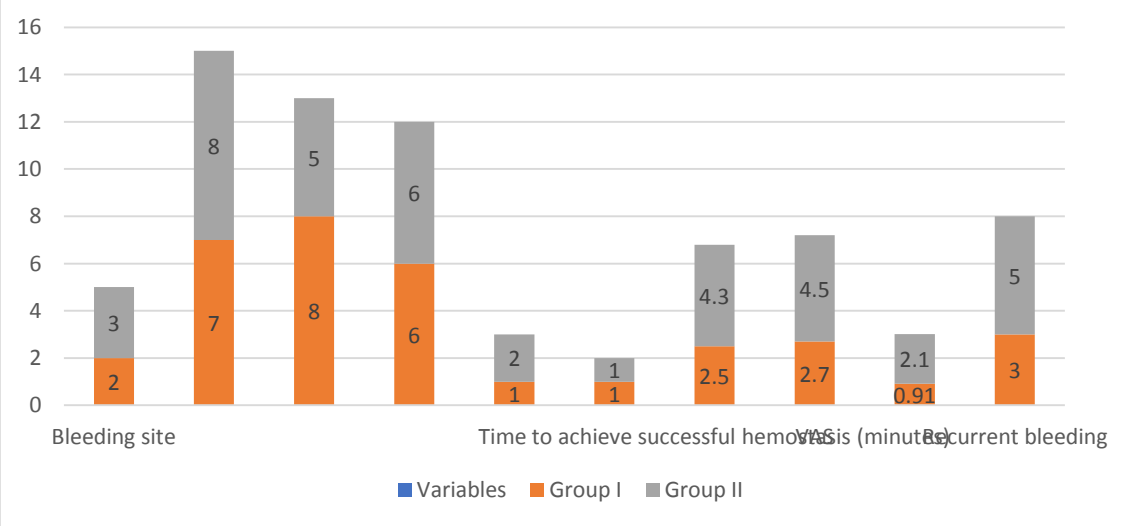
Table I shows that group I comprised of 15 males and 10 females and group II had 13 males and 25 females.

Table II Comparison of parameters

Parameters	Variables	Group I	Group II	P value
Bleeding site	Kiesselbach's area	2	3	0.17
	Olfactory cleft	7	8	
	Middle and posterior nasal septum	8	5	
	Middle meatus region	6	6	
	Inferior meatus region	1	2	
	Others	1	1	
Time to achieve successful hemostasis (minutes)		2.5	4.3	0.05
VAS	Day 1	2.7	4.5	0.04
	Day 2	0.91	2.1	0.05
Recurrent bleeding		3	5	0.03

Table II, graph I shows that bleeding site was Kiesselbach's area seen in 2 in group I and 3 in group II, olfactory cleft 7 in group I and 8 in group II, middle and posterior nasal septum 8 in group I and 5 in group II, middle meatus region 6 in group I and 6 in group II, inferior meatus region 1 group I and 2 in group II and others 1 each in group I and II. Time to achieve successful hemostasis was 2.5 minutes in group I and 4.3 in group II. VAS on day 1 was 2.7 in group I and 4.5 in group II and on day 2 was 0.91 in group I and 2.1 in group II. Recurrent bleeding was seen in 3 in group I and 5 in group II. The difference was significant (P< 0.05).

Graph I Comparison of parameters



DISCUSSION

Recurrent idiopathic epistaxis in children is repeated, self- limiting nasal bleeding in patients up to the age of 16 for which no specific cause has been identified. Epistaxis is defined as acute bleeding from the nostril, nasal cavity or nasopharynx.[7] Recurrent episodes are a source of significant distress and anxiety in children, their carers and clinicians, with the result that such nosebleeds are a common cause of morbidity and hospital referral.[8] The incidence of idiopathic epistaxis in all ages is thought to be highest during the colder winter months in northern climates, when upper respiratory tract infections are more frequent and when indoor humidity decreases to low levels at both home and in the work place.[9] Changes from a cold outside environment to a warm dry one may cause variations of the normal nasal cycle of alternating congestion and decongestion, which can then lead to sinonasal congestion, engorgement of the nasal mucosa and ultimately epistaxis. Airborne environmental pollutants are thought to increase the incidence of epistaxis. Epistaxis is also more common in hot dry climates with low humidity.[10] The present study compared microwave ablation versus bipolar electrocautery in patients with idiopathic epistaxis.

We found that group I comprised of 15 males and 10 females and group II had 13 males and 25 females. Vyas et al[11] compared the effectiveness of ultrasound (US)-guided percutaneous 915 MHz microwave (MW) ablation with the 2450 MHz MW ablation for large hepatocellular carcinoma (HCC) (>4 cm in diameter). Patients with HCC >4 cm in diameter who underwent US-guided percutaneous MW ablation with curative intention were randomly divided into two groups, 915 MHz MW group and 2450 MHz MW group. They compared the results of ablation between the two groups. Fewer antenna insertions for each tumour were required in the 915 MHz MW group (3.69 +/- 0.6) than in the 2450 MHz MW group (4.71 +/- 1.61) ($p = 0.01$). According to the follow-up contrast-enhanced imagings, technique effectiveness rate was 85.7% (18/21) and 73.7% (14/19) in the 915 MHz MW group and 2450 MHz MW group, respectively ($p = 0.44$). The rate of local tumour progression (LTP) was 14.3% (3/21) and 26.3% (5/19) in the 915 MHz MW group and 2450 MHz MW group, respectively ($p = 0.44$). There were no deaths and no thrombosis of major vessels in any patient.

We found that bleeding site was Kiesselbach's area seen in 2 in group I and 3 in group II, olfactory cleft 7 in group I and 8 in group II, middle and posterior nasal septum 8 in group I and 5 in group II, middle meatus region 6 in group I and 6 in group II, inferior meatus region 1 group I and 2 in group II and others 1 each in group I and II. Time to achieve successful hemostasis was 2.5 minutes in group I and 4.3 in group II. VAS on day 1 was 2.7 in group I and 4.5 in group II and on day 2 was 0.91 in group I and 2.1 in group II. Recurrent bleeding was seen in 3 in group I and 5 in group II. It should be noted that occasionally tumours such as juvenile angiofibroma may present as epistaxis (especially in teenage boys), as may certain bleeding disorders, such as von Willebrand's disease, haemophilia or idiopathic thrombocytopenic purpura, the latter being the most common systemic cause of epistaxis. Studies suggest that as many as 5% to 10% of children with recurrent nosebleeds may have mild, previously undiagnosed von Willebrand's disease. Hereditary haemorrhagic telangiectasia may also present in this way. Nevertheless, for more than 90% of all paediatric patients with epistaxis, there is no underlying systemic cause.[12]

CONCLUSION

Authors found that MWA is a favorable treatment option for patients with idiopathic recurrent epistaxis.

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