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MAIN ARTICLE

Prospective study of the risk of not using prophylactic antibiotics in nasal packing for epistaxis

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Abstract

Background: There is wide variation in UK prescribing practice regarding prophylactic antibiotics for nasal packing in spontaneous epistaxis. There are few published cases of infective complications in such patients.

Method: This prospective study examined 149 consecutive patients admitted to a tertiary otorhinolaryngology centre with spontaneous epistaxis, who underwent nasal packing, over a six-month period. In the first three-month period, 78 patients were routinely prescribed prophylactic antibiotics; in the second three months, 71 patients were not routinely prescribed antibiotics. Exclusion criteria included antibiotics prescribed for unrelated pathology and post-operative epistaxis. Signs and symptoms of acute otitis media, sinusitis and toxic shock syndrome were assessed using clinical examination and a questionnaire.

Results: Fourteen of the 149 patients experienced otalgia, most commonly following posterior nasal packing. No patient in either group had evidence of any infective complication.

Conclusion: We do not recommend the routine prescription of prophylactic antibiotics for patients undergoing nasal packing for spontaneous epistaxis.

Key words: Epistaxis; Complications; Infection; Antibiotics

Introduction

The practice of prescribing prophylactic antibiotics to patients undergoing nasal packing for spontaneous epistaxis, and the reasons behind this practice, vary greatly across UK ENT departments. A recent study found that 22 per cent of UK clinicians did not routinely prescribe antibiotics in this clinical context, whereas 37 per cent prescribed antibiotics if nasal packing remained in place for more than 24 hours.[1]

The justification for such antibiotics usage is the reduction of the incidence of infective complications. Proposed complications associated with nasal packing include otitis media, sinusitis and toxic shock syndrome. However, documented cases of complications are very rare, and some cases of complications are known to go unreported.[2–4]

The objective of the current study was therefore to investigate whether the absence of prophylactic antibiotic prescriptions for patients undergoing nasal packing for spontaneous epistaxis increases the risk of complications, such as those suggested in the literature.

Method

We studied a prospective case series of patients who were admitted to a tertiary otorhinolaryngology referral centre in the UK, who underwent nasal packing for spontaneous epistaxis.

The first limb of the study involved all patients admitted as an in-patient between October and December 2008 for spontaneous epistaxis. Patients in this group were prescribed a 5-day course of oral prophylactic antibiotics. The antibiotic of choice was amoxicillin with clavulanic acid, at a dose of 625 mg three times daily. In patients with a penicillin allergy, clarithromycin was used at a dose of 500 mg twice daily.

The second limb of the study involved all patients admitted for nasal packing with spontaneous epistaxis between January and March 2009. These patients were not prescribed prophylactic antibiotics.

As far as was possible, additional patient management was standardised. This included the use of departmental guidelines on epistaxis management and analgesia administration. The duration of nasal packing varied according to severity and patient risk

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factors such as anticoagulation, although in most individuals packs remained in place for between 24 and 36 hours.

The outcome measures were assessed using fibre-optic nasendoscopy, otoscopy, Rinne and Weber tests, biochemical markers of inflammation (including C-reactive protein), and a questionnaire evaluating symptoms of sinusitis and otitis media experienced before discharge. The questionnaire also evaluated facial pain, purulent nasal discharge, otalgia and new hearing loss. In patients who developed any of these symptoms or signs, suggestive of a complication, further investigation might include tympanometry, pure tone audiography and computed tomography of the paranasal sinuses.

Exclusion criteria included antibiotics prescribed for unrelated pathology, post-operative epistaxis, cardiac anomalies and epistaxis requiring surgical intervention.

Results

Seventy-eight consecutive patients were admitted into the study during the first three-month period (October to December 2008). Seventy-six patients were packed with Merocel (Medtronic, Mystic, Connecticut, USA) and five were packed with a bismuth iodoform paraffin paste dressing and a Foley catheter. Three patients underwent Merocel packing initially, then subsequently required bismuth iodoform paraffin paste dressing and Foley packing. Six of the 78 patients complained of otalgia, although all had a normal Rinne and Weber test and normal tympanic membranes on otoscopy. The incidence of otalgia with anterior and posterior nasal packing is shown in Table I. All other outcome measures were negative. No patient developed sinusitis, otitis media, toxic shock syndrome or any other type of complication.

Seventy-one consecutive patients were admitted into the study in the second three-month period (January to March 2009). Of these 71 patients, 68 were packed with Merocel and nine were packed with a bismuth iodoform paraffin paste dressing and a Foley catheter. Six patients underwent Merocel packing initially, then subsequently required a bismuth iodoform paraffin paste dressing and a Foley catheter. Eight of the 71 patients complained of otalgia, although all had a normal Rinne and Weber test and normal tympanic membranes on otoscopy. Table II shows the incidence of otalgia in patients with anterior and posterior nasal packing. All other outcome measures were negative. None of these patients developed sinusitis, otitis media, toxic shock syndrome or any other type of complication.

Discussion

Seventy-eight patients were admitted during the first limb of the study, five (6 per cent) of whom were packed with bismuth iodoform paraffin paste dressing and a Foley catheter. Four of these five patients complained of otalgia, compared with only two of the 76 patients packed with Merocel.

Of the 71 patients who were admitted in the second limb of the study, nine (13 per cent) were packed with a bismuth iodoform paraffin paste dressing and a Foley catheter. Five of these nine patients complained of otalgia, compared with three of the 68 patients packed with Merocel.

Otalgia was the only complication noted in any of the patients admitted during the six-month study period, with a greater incidence in those packed with a bismuth iodoform paraffin paste dressing and a Foley catheter, compared with Merocel packing. All patients with otalgia reported normal hearing, and had normal otoscopy and Rinne and Weber test results. In the absence of clinical otitis media, a tympanogram was not conducted.[5] Hence, it can only be assumed the otalgia was either referred pain from the nasal packing or secondary to temporary negative middle-ear pressure.

A study by Biswas *et al.*[1] investigated the antibiotic prescribing practices of ENT clinicians across England, for nasal packing prophylaxis. They found that 22 per cent did not use antibiotics routinely, 5 per cent used antibiotics in all patients undergoing nasal packing, 37 per cent prescribed antibiotics for patients with packs in situ for over 24 hours, and 28 per cent prescribed antibiotics if packs remained in situ for over 48 hours. Clinicians' reasons for prescribing prophylactic antibiotics included preventing associated toxic shock syndrome, sinonasal infection and middle-ear infection.

The outcome measures of our study were designed to detect the presence or absence of these and other complications. Although otalgia was present in 14 of the 149 patients studied, there was no evidence of acute otitis media or otitis media with effusion. There was also no evidence of sinonasal infection or toxic shock syndrome.

TABLE I
OTALGIA IN PATIENTS PRESCRIBED ANTIBIOTICS

Packing type	Patients (*n*)	Otalgia (*n* (%))
Merocel	76	2 (2.6)
BIPP & Foley	5	4 (80)

BIPP & Foley = bismuth iodoform paraffin paste dressing and Foley catheter

TABLE II
OTALGIA IN PATIENTS NOT PRESCRIBED ANTIBIOTICS

Packing type	Patients (*n*)	Otalgia (*n* (%))
Merocel	68	3 (4.4)
BIPP & Foley	9	5 (55.6)

BIPP & Foley = bismuth iodoform paraffin paste dressing and Foley catheter

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Further examination of the literature surrounding these potential complications revealed limited evidence of infective complications of nasal packing for spontaneous epistaxis. Thompson and Crowther[2] published data on 63 patients who underwent nasal packing following septal surgery, in whom middle-ear pressure was examined. They found 46 per cent of the 126 ears examined showed a reduction in middle-ear pressure of greater than 50 daPa on tympanometry. Of these 58 ears, 76 per cent became normal within 24 hours.

- **The prescription of prophylactic antibiotics for nasal packing varies widely in the UK**
- **Little published evidence exists to support infective complications of nasal packing for spontaneous epistaxis**
- **This study showed no evidence of infective complications of nasal packing, in patients prescribed and not prescribed prophylactic antibiotics**
- **It is safe to not prescribe prophylactic antibiotics in this patient group**

McCurdy[6] also found a reduction in middle-ear pressure associated with nasal packing, particularly in patients receiving posterior nasal packing.

These authors' findings provide evidence for eustachian tube dysfunction with nasal packing, but without the occurrence of middle-ear effusions.

Biswas *et al.*[1] found that some clinicians prescribed prophylactic antibiotics for patients undergoing nasal packing in order to prevent toxic shock syndrome. Toxic shock syndrome is a rare, multisystem illness characterised by the sudden onset of pyrexia and rash, with progression to shock and multi-organ failure. However, there is no published evidence of toxic shock syndrome occurring in patients with nasal packing, in the absence of nasal surgery. Toxic shock can occur with nasal packing in the post-operative period, and certainly must be considered in this situation.[7]

An additional reason for clinicians prescribing antibiotics for patients with nasal packing is to prevent sinonasal infections.[1] During our six-month study, no patient complained of any symptoms suggesting sinusitis. Ogawa *et al.*[8] noted the presence of an air–fluid level in the sphenoid sinus in some patients with nasal packing, but without any signs of infection. The literature does not provide clear evidence of nasal packing causing infective sinusitis. Furthermore, it is accepted practice for patients with chronic rhinosinusitis to undergo nasal packing following functional endoscopic sinus surgery, despite their predisposition to impaired sinus drainage.[9]

Conclusions

Overall, there appeared to be little standardisation in UK antibiotic prescribing practice for patients undergoing nasal packing for spontaneous epistaxis, and little published evidence to support infective complications. In our six-month study, we found no evidence of infective complications in any patient. As a result, we do not recommend the routine use of prophylactic antibiotics for patients undergoing nasal packing for spontaneous epistaxis.

References

1 Biswas D, Wilson H, Mal R. Use of systemic antibiotics with anterior nasal packing in England, UK. *Clin Otolaryngol* 2006; **31**:566–7
2 Thompson AC, Crowther JA. Effect of nasal packing on Eustachian tube function. *J Laryngol Otol* 1991;**105**:539–40
3 McGarry GW. Epistaxis. In: Gleeson M, ed. *Scott-Brown's Otorhinolaryngology, Head and Neck Surgery*, 7th edn. London: Hodder Arnold, 2008;**2**:1596–606
4 Daudia A, Jaiswal V, Jones NS. Guidelines for the management of idiopathic epistaxis in adults: how we do it. *Clin Otolaryngol* 2008;**33**:618–20
5 Browning GG. *Clinical Otology and Audiology*, 2nd edn. Oxford: Butterworth Heinmann, 1998
6 McCurdy JA. Effects of nasal packing on Eustachian tube function. *Arch Otolaryngol* 1977;**103**:521–3
7 Nahass RG, Gocke DJ. Toxic shock syndrome associated with use of nasal tampon. *Am J Med* 1988;**84**:629–31
8 Ogawa TK, Bergeron RT, Whitaker CW, Miles JW, Rumbaugh CL. Air-fluid levels in the sphenoid sinus in epistaxis and nasal packing. *Radiology* 1976;**118**:351–4
9 Orlandi RR, Lanza DC. Is nasal packing necessary following endoscopic sinus surgery? *Laryngoscope* 2004;**114**:1541–4

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