

The role of transcanine surgery in antrochoanal polyps

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Abstract

During a period of two years, 24 cases of antrochoanal polyps were diagnosed by clinical examination, nasal endoscopy and computerized tomography. Surgery started with endoscopic transnasal removal of the polyp. Every attempt was made to remove the antral portion of the polyp through the wide ostium. Then transcanine sinuscopy was performed. Remnants of the polyp were detected and removed in five cases. One or more other cysts were found and extirpated in 11 cases. Endoscopic follow-up for 18 months to three years revealed no recurrence.

It is recommended that endoscopic middle meatal surgery should be combined with transcanine sinuscopy to ensure complete removal of antrochoanal polyps.

Key words: Nasal polyps, surgery; Endoscopy

Introduction

The close relationship between the antrochoanal polyp and the maxillary sinus was first reported by Killian (1906) who traced the polyp from the nasopharynx to the region of the maxillary ostium but not into the sinus cavity. Kubo (1909) maintained that the choanal polyp originated from the maxillary sinus mucosa, just inside the ostium. Van Alyea (1956) found the choanal polyp, in some patients, to be attached to the lateral aspect of the maxillary sinus with a fibrous or polypoid pedicle (Berg *et al.*, 1988).

Because of the risk of recurrence after simple avulsion of the choanal polyp, maxillary sinus exploration and removal of the antral part of the polyp is generally recommended. This is usually performed through Caldwell-Luc antrotomy, inferior meatal nasooantral window or middle meatal antrostomy (Kamel, 1990).

In this study, it was our intention to investigate the role of transcanine surgery for the removal of the antral part of choanal polyps.

Patients and methods

During a period of two years, 24 cases of antrochoanal polyps were referred to our hospital and diagnosed by clinical examination, nasal endoscopy (Figure 1) and computerized tomography. There were 14 males and 10 females, and their ages ranged between 12 and 49 years. The main symptom was nasal obstruction by the mass of the polyp. Nine cases were recurrent: four after simple avulsion, two after inferior meatal nasooantral window and three after endoscopic middle meatal antrostomy. Only the last three cases had been originally operated upon by the authors themselves.

Surgery was performed with the patient under local anaesthesia and neuroleptanalgesia. The procedure started with endoscopic transnasal removal of the polyp. If the stalk of the polyp exited the maxillary sinus through an accessory ostium (Figure 1), it was not necessary to remove the uncinate process in order to resect the polyp. Otherwise, the uncinate process was incised using a sickle

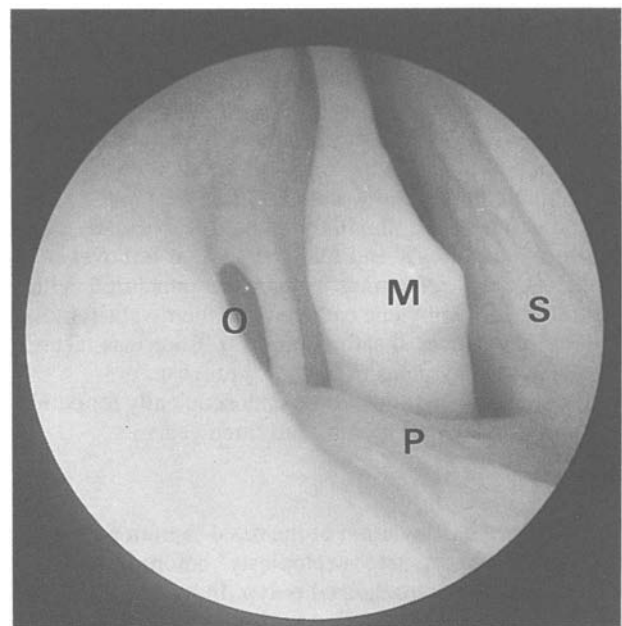


FIG. 1

An endoscopic picture of a right antrochoanal polyp (P) passing through an accessory ostium (O) (M = middle turbinate; S = nasal septum).

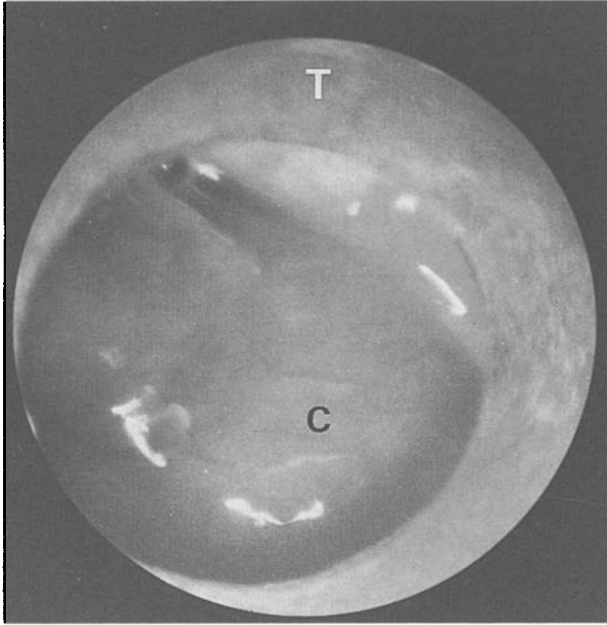


FIG. 2

An endoscopic picture of the right maxillary sinus through the canine fossa, after endoscopic transnasal removal of the antrochoanal polyp, showing an intramural cyst (C) which has thin, bluish, translucent walls (T = end of the trocar inside the sinus).

knife and then removed. The bulk of the polyp was easily removed either transorally when large or transnasally when reasonably small. The maxillary ostium was usually wide enough, but widening of the ostium was sometimes needed using the backward-cutting forceps. The antral part of the polyp was removed through the wide ostium using the upward-cutting and the biopsy malleable forceps, and also 30° and 70° telescopes. Every attempt was made to remove transnasally any residual intra-antral cysts, polyps or remnants of stalk. Ethmoidectomy was performed if there was associated ethmoidal pathology.

The next step in the surgical management of the antrochoanal polyp was endoscopic examination of the maxillary sinus through the canine fossa (Figure 2). The introduction of the maxillary sinus trocar usually broke open the antral cyst and allowed suction-removal of its contents. Any remaining cysts were punctured with a sharpened polyethylene catheter, and their walls removed through the trocar sheath (Figure 3). Care was taken to preserve healthy areas of the sinus mucosa.

The cases were followed-up endoscopically for periods ranging between 18 months and three years.

Results

In four cases, deviation of the nasal septum was severe enough to necessitate septoplasty before endoscopic removal of the antrochoanal polyp. In most of the cases, there was a single polyp, but in three patients, two polypi could be traced coming out of the maxillary sinus. In another two patients, it was associated with ethmoidal polypi, that were treated with endoscopic ethmoidectomy. This association has also been reported by Neel (1984) and Kamel (1990).

During endoscopic removal of the polyp, the uncinate process was incised and removed in six cases. In the other patients, it was not necessary to remove the uncinate pro-

cess because it had atrophied due to pressure by the polyp (two cases) or because the polyp left the sinus through an accessory ostium (16 cases). The polyp passed through the main ostium (eight patients) or an accessory ostium (16 patients). Most of the cases were associated with a wide enough ostium to visualize and manipulate the interior of the sinus using the upward-cutting and the biopsy malleable forceps. Only five cases required endoscopic widening of the maxillary ostium using the backward-cutting forceps. The antral part of the polyp was found to be cystic in all cases, and its stalk attached to the medial antral wall in the vicinity of the inner maxillary ostium (five cases) or to the inferolateral aspect of the sinus cavity (14 cases). The site of attachment could not be determined precisely in five cases.

During transcanine sinuscopy, remnants of the collapsed cyst wall which have not been detected by transnasal endoscopy, were visualized and removed (five cases). One or more other cysts were found in 11 cases. They had bluish translucent walls and straw-coloured fluids. They were punctured with the tip of the trocar or polyethylene catheter, their contents aspirated and their walls removed through the trocar sheath.

Endoscopic follow-up of these patients for periods ranging between 18 months and three years revealed no recurrence.

Discussion

The antrochoanal polyp presents a fairly uniform clinical picture. It has always two components; one that is cystic which frequently completely fills the maxillary sinus and the other a solid polypoid part which extends into the middle meatus and nasopharynx (Stammberger, 1991). Berg *et al.* (1988) found that the choanal polyp develops from an expanding intramural maxillary sinus cyst protruding through the maxillary ostium into the nasal cavity.

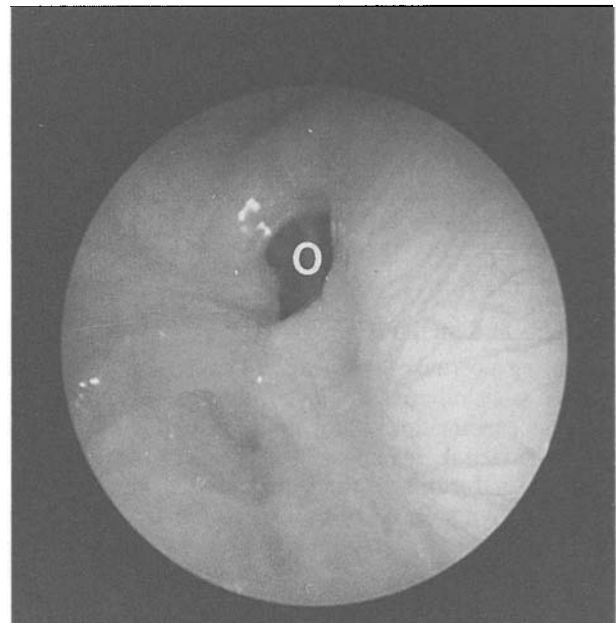


FIG. 3

An endoscopic picture into the right maxillary sinus through the canine fossa after the cyst had been punctured, its contents aspirated and its walls removed through the trocar sheath (O = accessory ostium).

Since simple avulsion polypectomy is followed by a high recurrence rate (Batsakis, 1980; Neel, 1984), it is therefore common practice also to remove the polyp's antral portion. There is controversy concerning the route of removal of the antral part. Caldwell-Luc antrotomy offers a good exposure and ensures complete removal of the antral part of the polyp as well as the sinus mucosa (Schramm and Effron, 1980; Yarrington, 1984). Many side effects were reported after this procedure in the form of swelling of the cheek in the immediate post-operative period, long recovery time, and late post-operative sequelae such as numbness and anaesthesia of the cheek and devitalization of the teeth (Ophir and Marshak, 1987).

Removal of the antral part via an inferior meatal nasooantral window has been advocated by Neel (1984). However, this approach does not always allow sufficient exposure of the antral walls even after resection of the anterior half of inferior turbinate as modified by Ophir and Marshak (1987). Intranasal adhesions and troublesome haemorrhage were sometimes encountered (Lavelle and Harrison, 1971).

It was claimed that endoscopic transnasal removal of the antral part via the maxillary ostium ensures complete removal of the polyp (Kamel, 1990). However, intra-antral remnants of the polyp and a second cyst lying in an unfavourable position may be easily overlooked. In our study, three patients had a history of recurrence after endoscopic middle meatal antrostomy. Moreover, during transcanine sinuscopy, remnants of the collapsed cyst wall were detected in five cases, and one or more intramural cysts were also found in 11 cases. These cysts may explain the long-term recurrence of choanal polyps.

In this study, antrochoanal polyps were treated by combining endoscopic middle meatal surgery and transcanine sinuscopy. The middle meatal surgery ensured complete removal of the nasal part of the polyp, cleared peri-ostial pathology and treated any associated ethmoid disease, while by transcanine sinuscopy, antral cysts were punctured, their contents aspirated and their walls removed through the trocar sheath. Endoscopic follow-up for 18 months to three years revealed no recurrence. More cases

and a longer period of follow-up are necessary in order to provide long-term results. Any recurrence after applying this technique can be treated by a modified Caldwell-Luc approach (Myers and Cunningham, 1986), in which the polyp and the entire antral mucosa are removed as one unit under direct visualization, utilizing the wide maxillary ostium for drainage.

References

- Batsakis, J. G. (1980) The pathology of head and neck tumors: nasal cavity and paranasal sinuses. *Head and Neck Surgery* **2**: 410–419.
- Berg, O., Carefelt, B., Silfverswärd, C., Sobin, A. (1988) Origin of choanal polyp. *Archives of Otolaryngology, Head and Neck Surgery* **114**: 1270–1271.
- Kamel, R. (1990) Endoscopic transnasal surgery in antrochoanal polyp. *Archives of Otolaryngology, Head and Neck Surgery* **116**: 841–843.
- Killian, G. (1906) The origin of choanal polypi. *Lancet* **2**: 81–82.
- Kubo, J. (1909) Über die eigentliche Ursprungsstelle und die Radikaloperation der solitären Choanalpolypen. *Archiv der Laryngologie, Rhinologie und Otologie* **21**: 81.
- Lavelle, R. J., Harrison, M. S. (1971) Infection of the maxillary sinus: the case for middle meatal antrostomy. *Laryngoscope* **81**: 90–106.
- Myers, E. N., Cunningham, M. J. (1986) Modified Caldwell-Luc approach for the treatment of antral choanal polyps. *Laryngoscope* **96**: 911–913.
- Neel, H. B., III. (1984) Antrochoanal polyps. In *Current Therapy in Otolaryngology-Head and Neck Surgery* (Gates, G. A., ed.), C. V. Mosby Co., St Louis/Toronto, pp 318–321.
- Ophir, D., Marshak, G. (1987) Removal of antral polyp through an extended nasooantral window. *Laryngoscope* **97**: 1356–1357.
- Schramm, V. L., Effron, M. Z. (1980) Nasal polyps in children. *Laryngoscope* **90**: 1488–1495.
- Stammberger, H. (1991) Antrochoanal polyps. In *Functional Endoscopic Sinus Surgery* (Stammberger, H., ed.), B. C. Decker, Philadelphia, pp 346–349.
- Van Alyea, O. E. (1956) Management of non-malignant growths in the maxillary sinus. *Annals of Otolaryngology* **65**: 714–722.
- Yarrington, C. T. (1984) The Caldwell-Luc operation revisited. *Annals of Otolaryngology, Rhinology and Laryngology* **93**: 380–384.

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