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Nasal-Sinusal Polyps in the Picture of Combined Radiological-Endoscopic Technique

Polipy nosowo-zatokowe w obrazie skojarzonej techniki radiologiczno-endoskopowej

In a group of 94 patients, aged 14--79 years with verified by operation polyps of the nasal meatus, maxillary sinuses and ethmoid cells there was carried out an analysis of radiological changes in correlation with endoscopic findings. Beside single polyps in 67 patients they were numerous and bilateral in the course of diffuse, chronic polyposis of the nose. The period of complaints and of treatment ranged from one month to over 10 years.

Endoscopy was performed through the inferior and middle nasal meatus in the course of nasal removal of the polyps as well as by means of anastomosing maxillary sinus and inferior nasal meatus after operation according to Caldwell-Luc method. Standard X-ray examination was in some cases supplemented by CT imaging.

Various etiologies of the polyps and of bilateral nasal and ethmoid polyposis are associated with recurrent, chronic bacterial infections, seasonal allergy, lability of the vasomotor system of the mucous membrane, secondary bacterial allergy. Nasal and sinusal polyposis results from chronic, hypertrophic inflammatory changes of the sinuses, especially of maxillary ones (2). There is emphasized reversibility of mucosal hypertrophic changes and reconstruction of mucosal functions after sinusal ventilation has been restored (6). Oedemas and pachymenias give rise to narrowings, obstructions, reduction of airing and predispositions to secretion accumulation, especially of maxillary sinuses.

Radiological-endoscopic changes of maxillary sinuses in patients with polyps are presented in Table 1. Pathology of the mucosa was found in 83% of the patients examined. Its pachymenia was assessed as considerable when it involved over three fourths of the sinusal lumen. Endoscopically observed polypous mucosal oedemas obliterated the openings which were then considered difficult for identification (52% of openings). The reduction of sinusal opening visible as a small fossula was classified as impatency. Narrowing of the opening was found in 25.5% of cases. The endoscopic assessment of the appearance and patency of the openings is vital for ventilation, cleansing of sinuses and for predispositions

Table 1. Radiological-endoscopic changes of maxillary sinuses in the group of 94 patients with nasal polyposis

Character of changes	Endoscopy	X-ray
Opening sinuses normal	21	—
Opening sinuses narrowed	24	—
Opening difficult to identify	49	—
Mucous membrane normal	16	—
Mucous moderate thickenings	—	28
Mucous considerable thickenings	—	22
Isolated polyp	36	—
Multiple polyps	42	—
Secretion normal	31	—
Secretion abundant, non-pus	28	—
Secretion pus	35	—
Sinuses clearness	—	9
Sinuses opacity	—	31
Fluid level	—	4

to recurrences of inflammations. Restoration of normal patency of the openings and of sinusal ventilation prevents chronic infection and recurrences of hypertrophic changes (7). Chronic suppuration of maxillary sinuses and the ethmoid increases the possibility of recurrent polyps (2). Pus from the sinus coming to the middle nasal meatus stimulates polyp formation (Fig. 1a, b).

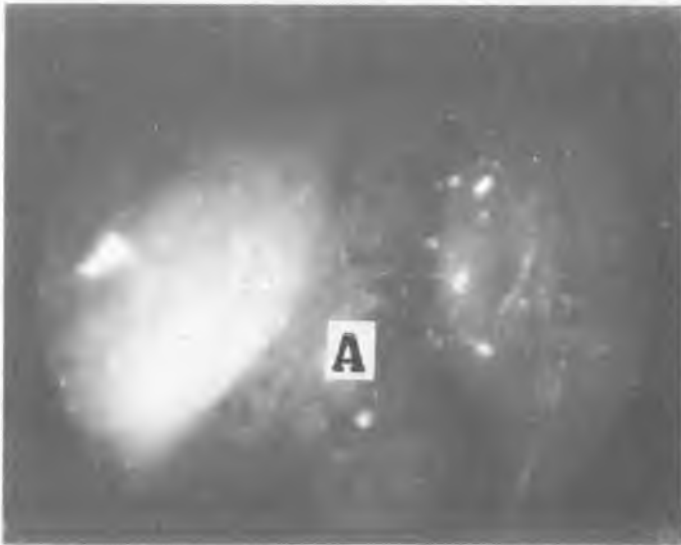
In radiograms polyp masses filling up nasal meatuses and sinuses caused differentiated ventilation failure. Single or multiple spheric structure polyps were dome-shaped, had homogeneous density of soft tissues with mean saturation, sometimes sharp bordering with the air remaining in the sinus in the form of a crescent. When the upper polyp border reaches the sinus top, there occurs opacity. Its intensity depends on the site, volume and shape of the polyp. Only 33.5% of polyps were recognisable in the form of spheric shadows, which, irrespective of endoscopy, points to purposefulness of making stratiform pictures in order not to overlook malignant tumours.

Polyps usually arouse from the ethmoid opaque in radiograms from whence they penetrated into nasal meatuses (Fig. 2a, b). They were a consequence of a progressing form of a chronic inflammation, especially of anterior ethmoid cells (3, 8). Endoscopy of the middle nasal meatus revealed in 15 patients ectasia of the ethmoidal bulla, bilateral as a rule, caused by polyps coming from the ethmoidal labyrinth. Bilateral character of changes had a significant sign of nasal polyposis, important in differentiating it from the malignant process, unilateral as a rule (4).

Opacity of the ethmoid was sometimes an indication for stratiform examinations performed to determine precisely the extent of polyposis, ectasia, decal-



a

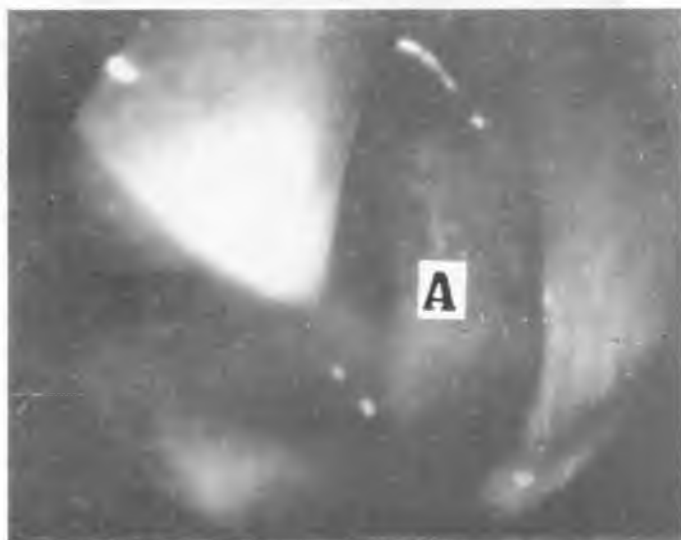


b

Fig. 1: a — uniform opacity of the left maxillary sinus; considerable decrease of ethmoidal ventilation of parabasic frontal sinuses; parietal, circular pachymenia within the right maxillary sinus; b — endoscopically — a polyp coming from the opening of the right maxillary sinus, nasal meatuses and ethmoid on the right side (A)



a



b

Fig. 2: a— intensive opacity of the right maxillary sinus, nasal meatuses and ethmoid on the right side;
b — endoscopically — polyp coming from the ethmoid (A)

cification, modelling, thinning of the osseous lamella, exclusion of erosion. Thinning and decalcification of the ethmoid lamella was found in 3 patients and sclerotic reconstruction in 2 cases of ethmoid polyposis. Standard tomography, like computed tomography, reveals filling of ethmoid cells, yet the filling tissue sometimes remains an open question (5).

Endoscopically the polyps had a transparent fish bladder appearance, shell-like or glass-globe shape. Their surface was smooth, glossy, pale-pink, sometimes with bluish hue. Beside them in the lumen of the middle nasal meatus there was found the presence of mucous-pus secretion, pus, inflammatory granulation, crusts and ecchymosis.

Unilateral and single antrochoanal polyps usually of low density occurred in 5 patients. Endoscopy revealed their bilobate shape with a cistoid part in the maxillary sinus and more solid in the middle meatus with falling out through the posterior nostrils to the nasopharynx. In diagnosis lateral radiogram was useful outlining on the air background the polypous mass, narrowing or closing the nasopharynx. In 2 patients inflammatorily oedemous mucous membrane fell out of the widened opening of the maxillary sinus to the nasal cavity, simulating an antrochoanal polyp. These polyps coexisted with allergic rhinitis.

The group of acidophilic polyps with documented allergic background (eosinophilia, neutriphilia, the nasal secretion, endoscopic allergic reactions of the nasal and sinusal mucous membrane, dermal tests) was constituted by 11 patients. Chronic allergic polyps looking like oedemous, transparent fish bladders (1) with considerable oedema were usually numerous, bilateral, flaccid, watery, pendulous, easily displaceable, did not bleed. They were accompanied by a systemic swelling of sinusal lining causing opacity, especially in the fundi of maxillary sinuses. Polypous degeneration of the mucous membrane, being an expression of diffuse oedemous polyposis tended to be recurrent. At the same time allergisation predisposed tissues to secondary infections and general reactions. Radiography, unlike endoscopy, gives very little physiological information. An opaque sinus is only a nonspecific X-ray sign. A pus ball in the fundus of the maxillary sinus may have a radiographic polyp appearance. Similarly, thick, gluish mucous may form in the vicinity of the sinusal wall a shadow with an outline protruding to its inside giving an erroneous X-ray picture of a polypous formation. A soft, pedunculated polyp may be movable and may undergo displacements, like a liquid. The shape and intensity of radiographic shadows has, therefore, a limited diagnostic significance because of multivocal appearance of some radiographic condensations. In these patients sinusoscopy was more infallible in the assessment of the patency of sinusal openings, secretion, as well as in revealing a small amount of residual secretion in the maxillary sinuses which accompanies polyps. Differences of radiological-endoscopic assessments occurred in 9 patients (9.5%). Combining the two techniques makes it possible to obtain optimum information about the morphologic condition of polypous structures.

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STRESZCZENIE

W grupie 94 chorych z polipami nosowo-zatokowymi przeprowadzono analizę zmian radiologicznych w korelacji do odkryć endoskopowych. Stwierdzono wieloznaczny wygląd niektórych cieni radiograficznych, podczas gdy sinusoskopia była bardziej niezawodna w ocenie drożności ujść i stanu czynnościowego zatok. Rozbieżności oceny ujawniono u 9,5% badanych.