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Pathology of chronic maxillary sinusitis and possible blood changes

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SUMMARY

Specimens from the diseased sinuses in cases of long standing chronic maxillary sinusitis were taken during Caldwell-Luc operation. Histopathological examination revealed hyperplasia of the epithelium which may invaginate forming pouches and subepithelial nests. The secretory glands increase both in number and size indicating the chronicity of the disease.

The maxillary sinus is the most common paranasal sinus to be affected however, often other sinuses are involved at the same time. Mostly chronic maxillary sinusitis follows an incompletely resolved acute one, but may insidiously appear after cold or dental extraction.

MATERIAL AND METHODS

This study included 50 patients admitted to hospital with chronic maxillary sinusitis not responding to conservative treatment. Twenty healthy controls of comparable age and sex were included. Full E.N.T. and clinical examination were carried out for the subjects together with radiological study. The laboratory studies included sedimentation rate by Westergren method, leucocytic count, blood grouping and Rh factor. Biuret reaction was used to determine the total serum protein, serum albumin and globulin. Stool examination was necessary to exclude parasitic infection.

The specimens needed for histopathological examination were taken from inside the diseased sinus during Calwell-Luc operation. The removed specimens were fixed in formalin, processed and paraffin blocks were prepared. Sections of 5 microns were stained by haematoxylin and eosin.

The age and sex distribution of the patients is shown in Table 1.

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Table 1.

no.	sex		age
	female	male	
8	6	2	below 20 years
18	6	12	21–30 years
16	10	6	31–40 years
4	2	2	41–50 years
4	4	–	above 50 years

RESULTS

All the patients had chronic maxillary sinusitis with purulent nasal and post nasal discharge. Radiological examination revealed generalised thickening of the antral mucosa and opacity of the sinuses and with fluid levels in seven cases. Repeated puncture and lavage did not improve the sinuses. E.S.R. leucocytic count and protein level were normal with high eosinophil count. The result of blood grouping is shown in Table 2.

Table 2.

no.	sex	blood grouping			
		A	AB	B	O
26	male	42.31%	11.54%	7.69%	38.46%
24	female	54.17%	0 %	12.5 %	33.33%

Table 3 shows a comparative study between the incidence of ABO blood groups in both Egypt and Britain and it seems that there is no relation between ABO blood groups and chronic maxillary sinusitis.

Table 3.

	A	O	AB	B
incidence in Britain (after Dobson)	44.70%	43.45%	3.26%	8.59%
incidence in Egypt (this study)	48.24%	35.89%	5.77%	10.10%

Histopathological examination showed hyperplasia of normal pseudostratified columnar ciliated epithelium lining the sinus to many layers (Figure 1). In some cases the hyperplastic epithelium was invaginated under the surface epithelium forming pouches (Figure 2). The pouches were even separated from the underlying surface to form nests (Figure 3). Other epithelial changes were patchy metaplasia of the columnar cells to stratified squamous epithelium (Figure 4). The

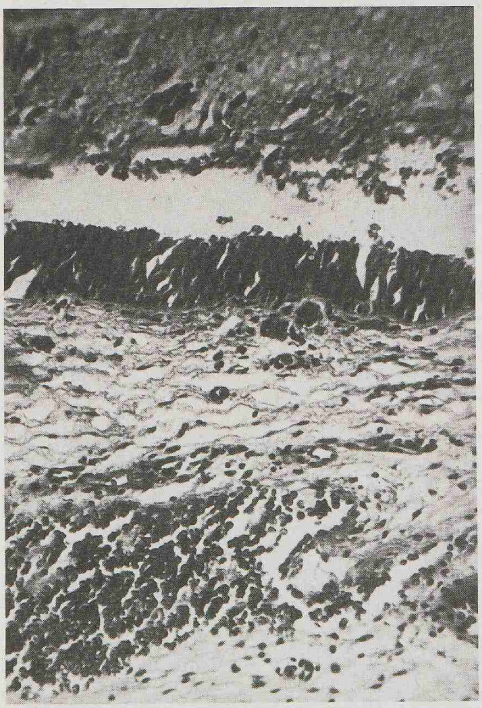

Figure 1. Normal mucosa from the wall of healthy maxillary sinus. The epithelium is intact. The subepithelial layer is thin with little lymphocytes X 200.

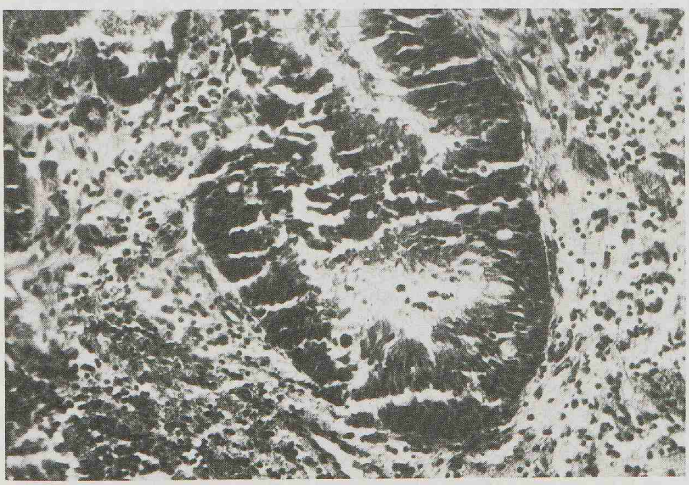

Figure 2. Invagination of the hyperplastic epithelium in inflammed mucosa.

lamina propria in all examined cases were infiltrated by chronic inflammatory cells with lymphocytes taking the upper hand (Figure 5).

In addition there was infiltration by plasma cells which were extensive in 30% and moderate in the other cases. Histiocytic infiltration was moderate in all examined sections with occasionally present neutrophils.

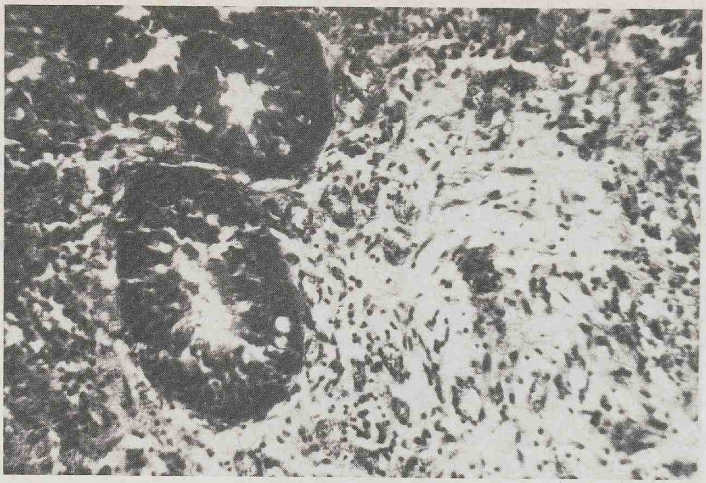

Figure 3. Separation of the invaginated hyperplastic epithelium forming sub-epithelial nests.

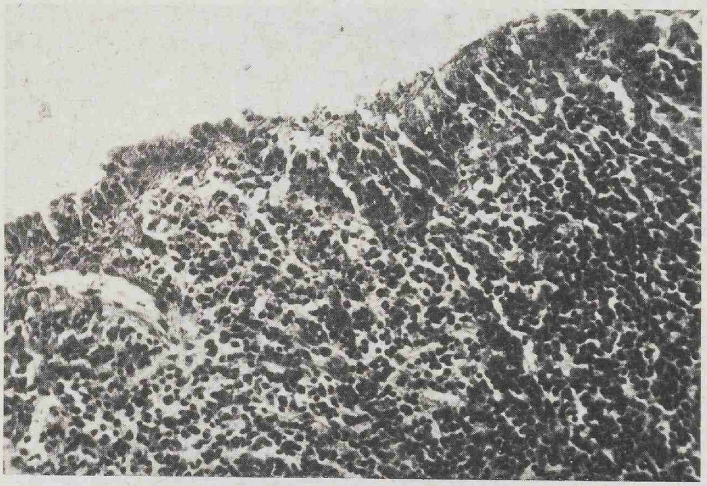

Figure 4. Metaplasia of the columnar epithelium to stratified squamous epithelium.

Figure 5. Periarteritis, periphlebitis and oedema in a moderately inflammed mucosa.

Eosinophilic infiltration was moderate in most cases. In all cases the cellular infiltration was diffuse affecting the mucosa and lamina propria but in some was localised around the blood vessels i.e. periphlebitis, periarteritis or even perilymphangitis (Figure 5). In most cases oedema of the mucous membrane was moderate but was severe in 30% in which the blood vessels were severely congested and the lymphatics were dilated (Figure 6).

In 80% of cases there was increased number of the mucosal secretory glands (adenosis). The glands were full of secretion and increased in size. With long standing infection the glands were separated from the subepithelial layers and from each other by fibrous tissue (Figure 7).

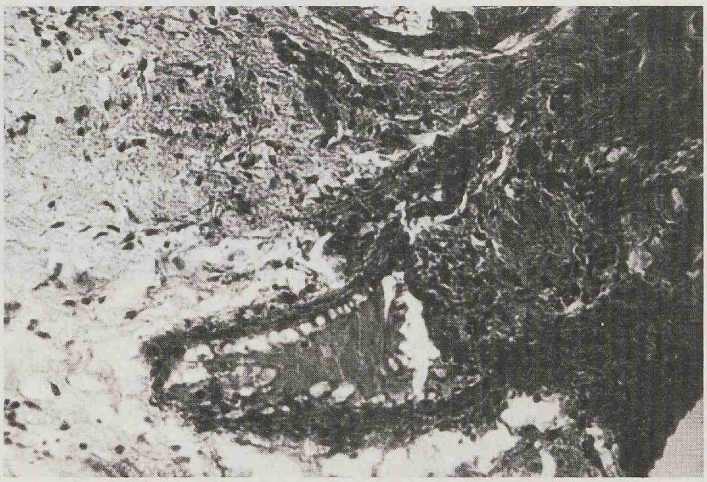

Figure 6. Dilated lymphatics and oedema around, with fibrosis seen at the left side.

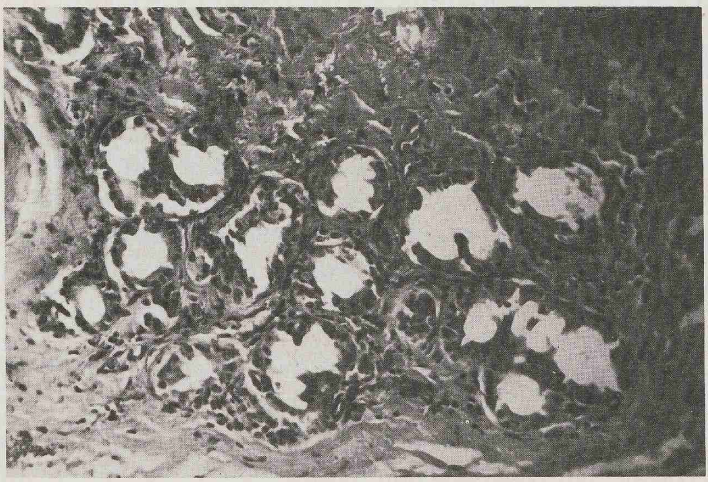

Figure 7. Secretory glands in the mucosa and increased in number, with moderate dilatation of some of them.

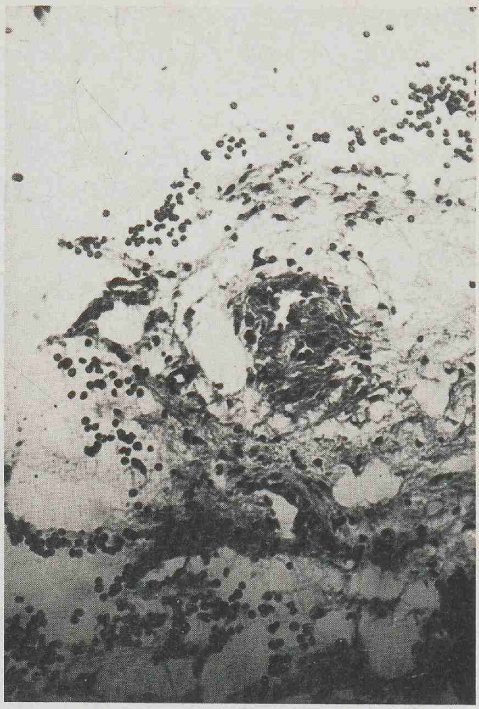

Figure 6. Endarteritis obliterance with fibrosis around, oedema and some cellular infiltration.

In two cases the blood vessels showed endarteritis obliterance (narrow lumen with thick fibrosed wall) and they were associated with heavy infiltration and chronic inflammatory cells (Figure 8).

RÉSUMÉ

Cette étude a été faite sur 50 patients souffrant de sinusite maxillaire chronique. Un examen ORL complet en un examen clinique ont été pratiqués. Un examen radiologique et un examen de laboratoire ont été faits également. D'après notre étude, nous pensons que nous ne pouvons pas faire dépendre le diagnostic final de ces investigations. La répétition de ponctions de contrôle est importante. Il faut rechercher l'allergie et la traiter avec un traitement adapté. En dernier ressort, l'opération de Caldwell-Luc doit être pratiquée.

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