

## Postoperative Maxillary Cyst

Toru SEKITANI, Keisuke MATSUMOTO,  
Takahiro ITO, Yasuo HARA and  
Masaaki MIYAHARA.

*From Department of Otolaryngology,  
Yamaguchi University School of Medicine.  
(Director: Prof. S. Honjo)  
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“Postoperative maxillary cyst” (Cystoma postoperativum buccalis-Kubo-) was found by prof. I. Kubo<sup>1)</sup> in 1927 and described the case with mucinous cyst as late complication of the radical operation of the maxillary sinus. Since then, many clinical and experimental reports are available in Japanese literature, while only a few reports appear in American-european literature except for in German.

In this paper, a case with recurrent cheek swelling, exophthalmos, blurring vision, and diplopia is presented; and statistical observation from 30 cases experienced in our clinic for last 15 years (1949-1964) are described.

### Case report

A 37 years old Japanese female, housewife, was admitted to Yamaguchi University Medical School Hospital with chief complaints of cheek swelling and eye trouble on the right side for two months, on September 9, 1963. Previously, she had had a radical operation of the maxillary sinus 22 years ago. Eleven years after the first sinus operation, afebrile, nontender swelling over the right maxilla with abnormal sensation developed. So, removal operation of the postoperative maxillary cyst was undergone by an otolaryngologist. About one year prior to the admission, she again began to have many complaints on her right cheek; such as upper dental root pain, tingling sensation over the face and expanded sensation in the cheek. However, those complaints well subsided after one week of nasal irrigation and conservative treatment. Two months before the admission, the similar trouble occurred again and swelling over the right maxilla increased rather rapidly in size for only 3 days or so. At this time, those persisted even though daily conservative management by some otolaryngologists. One month later, she noticed blurring vision, reduction of vision, pain at the right inner canthus area and epiphora.

On admission, examination revealed that she was well developed and fairly well nourished in no acute distress. There was asymmetry of the face with marked displacement of the right eye to upward and nontender soft fluctuant mass over the right maxilla, especially at the right infraorbital region (Fig. 1). The right



Fig. 1. Pre-operative front view  
Note the right eye deviated upward and swelling at the right infraorbital region. Right nasolabial fold disappeared

Fig. 2 Ophthalmological Report

	Pre-op.		Post-op.	
1) Visual acuity	RV=0.8		RV=1.0	
	LV=1.0		LV=1.0	
2) Exophthalmetrie (by Hertel)	R 16		R 13	
	L 13		L 13	
3) Diplopa test	□ <sub>l</sub>	□ <sub>l</sub>	□ <sub>l</sub>	□ <sub>l</sub>
	□ <sub>l</sub>	□ <sub>l</sub>	□ <sub>l</sub>	□ <sub>l</sub>
	□ <sub>l</sub>	□ <sub>l</sub>	□ <sub>l</sub>	□ <sub>l</sub>
4) Eye movent	Disturbed		Normal	
Bulb deviation	To upward		None	
5) Palpation in the orbit	Mass		Negative	

inferior turbinate and the middle concha were hypertrophied and swollen.

Ophthalmologist reported slight reduction of visual acuity, diplopia, exophthalmos and disturbed eyeball movement (Fig. 2). Ophthalmologist explained also that he was able to palpate some mass in the infraorbital space and questionable bony defect of the orbital margin of the maxilla. Serologic tests for syphilis were negative. Peripheral blood examination showed that WBC was 9600; otherwise normal.

Caldwell-Luc's procedure was done revealing bony defect of the canine fossa, lateral wall and upper wall of the antrum. There were two separated cysts appeared (Fig. 3); one of the cysts located and occupied large part of the maxillary sinus. The membrane of the cyst became thick generally and partly tough, especially at the lateral-lower wall. Bony wall of the orbital ridge (Margo or-

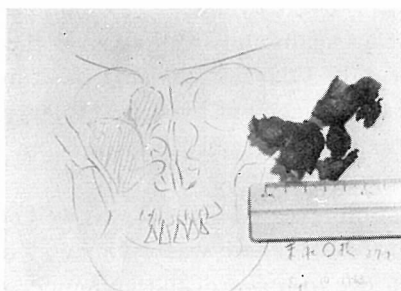


Fig. 3. Schema of X-ray film and cysts removed

bitalis and *Facies orbitalis*) were eroded and defect. Firm adhesion of the cyst wall to the orbital periosteum was observed and well separated by blunt dissection. Fluid content of the cyst was greenish tenacious mucous secretion, approximately 5 ml., removed. Another small one of the cysts located in the upper-inner antrum to the ethmoidal region (Fig. 3), eroding the medial wall of the orbit and displacing the proper ethmoidal cell mucosa to inward. Natural orifice area of the right antrum was gorged widely and the large nasoantral window was made at the inferior meatal wall. Labiogingival incision wound was closed primarily with tegus.

Postoperative course was uneventful, and ophtalmological findings were very much improved (Fig. 2). Swelling and dullness over the right cheek subsided. There has been no recurrence of symptoms in the past one and half year.

Histopathological examination of the cyst removed from the antrum showed chronic inflammation with generally atrophic epithelial lining which remained only as scattered epithelium. And moderate amount of the lymphocyte and plasma cell infiltration in the submucous and proliferated connective tissue layer (Fig. 4); findings of the cyst from the ethmoidal region was similar to the mentioned above, with apparently normal ciliated stratified epithelium (Fig.5). Partly, in the thickened cyst wall, there was seen ossification at the connective tissue layer.

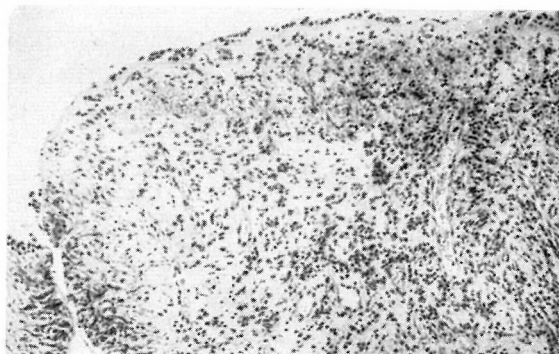


Fig. 4. Microphotograph of cyst from antrum.

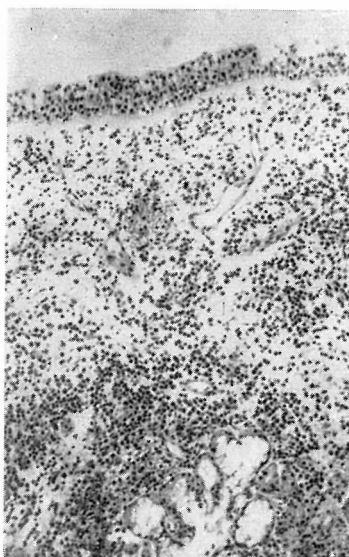


Fig. 5. Microphotograph of cyst removed from the antral-ethmoidal region.

## Statistical observation

Thirty cases of postoperative maxillary cyst experienced and well recorded in our clinic from 1949 to 1964 were statistically observed from clinical and pathological standpoint of view.

Age: As shown in Table 1, there was no special characteristics in age distribution, however, increase of number of the case was seen in the 21-39 years old group.

Sex: Incidence of this disease in sexes was 21 in male and 9 in female (Table 2). Postoperative duration until present onset ranged from 3 years to 49 (Table 3).

Symptoms: Many and various kinds of symptoms were noted.

However, there is systematic occurrence of symptoms such as; chiefly in the cheek (Type I), in the eye (Type II), in the nose (Type III) and appeared in the oral cavity (Type IV). According to this classification (Iwamoto)<sup>2)</sup>, seventeen cases in our series showed Type I; three cases, Type II; six in Type III; and four cases had chief complaint from the oral cavity. Histopathological examination made thoroughly in 10 cases of our series gave the following findings: ciliated stratified columnar cells were seen in most of the cases, however, one of them had squamous cell epithelium. Mucous gland was observed in most of specimen in various degree (abundantly). All of the cases have inflammatory changes in specimen, in some degree.

## Comment

The results of our series were compared with other reports on the postoperative maxillary cyst.

Age: The disease condition occurred in every age group after the age that the radical operation of the sinus was indicated, as shown in Table 1. Total of the 21-30 and 31-40 years group is 50 per cent. Similar tendency was able to

Table 1. Age Distribution

years old	No. of case
16-20	1
21-30	7
31-40	8
41-50	7
51-60	4
61-(65)	3
Total	30

Table 2. Sex

Male	21
Female	9
Total	30

Table 3. Postoperative duration until present onset

years	No. of case
1- 5	6
6-10	4
11-15	5
16-20	4
21-25	5
26-30	2
31-35	3
36-40	1

Table 4. Type of chief clinical symptoms

	cases
Type I (in Cheek )	17
Type II (in Eye )	3
Type III (in Nose )	6
Type IV (in Oral cavity)	4

review in other reports. The youngest in our series was 20 years old and the oldest was 60. Kimura reported a 11 years old boy case and Mukasa's case was 85 years old (cited by Tamura)<sup>4</sup>).

Sex: Male overnumbered female two to one. However, it is well considered that there is no significant difference in sex factor against this disease because the ratio of the male and female those who had undergone radical operation of the paranasal sinuses is usually two to one, respectively. The average of duration until the disease onset was 15-16 years after the pervious operation; the shortest was three years and the longest case was 40 years in our series. In literature, the shortest was only one year, and the longest was 40 years.

Stmptoms: Various kinds of symptoms appeared and developed owing to the size, location, invaded region and mucous secreting function of the cyst, and other factors. As already mentioned, there were Type I to Type IV classification according to the tumorous invasion chiefly to the cheek, eye, nose or oral cavity (Table 4).

These symptom appeared solitary in eairy stage and combined in late stage, In most of cases, swelling and dullness of the cheek are predominant sign (Table 4). Because of these complicated symptoms, the patient visited sometimes to the dentist, ophtalmologist or surgeon, and then had been occasionally treated with unproper management, such as simple incision or punture producing the persistent fistula. Tahara<sup>5</sup>) of our department reported a case of postoperative maxillary cyst with persistent fistula of the face after incision. And Takahashi<sup>6</sup>) from our clinic reported postoperative palatine cyst. On histopathological results: Histopathological findings and diagnosis are required to confirm the diagnosis and

to differentiate from other serious disease with malignancy. Iwamoto<sup>2)</sup> studied thoroughly the cases clinically and histopathologically by serial sections of whole cyst removed; and explained fourteen cases in 15 cases had ciliated epithelium and one had cylinder epithelium. Iwamoto, finally, concluded that all of the postoperative maxillary cyst have some epithelium suggesting that the cyst formation might be due to 'retention'.

### Summary

A case of recurrent 'postoperative maxillary cyst' as late complication of the radical operation of the maxillary sinus is presented and thirty cases experienced in our clinic of last 15 years' period are studied from the clinical and histopathological standpoint of view.

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