

and that he compared and contrasted the heart condition on her return from the fever hospital with that before her return. The patient's general health has not been affected although she has had the lesion for 14 years. The attacks of faintness are regarded as those of Stokes-Adams type; they first appeared five

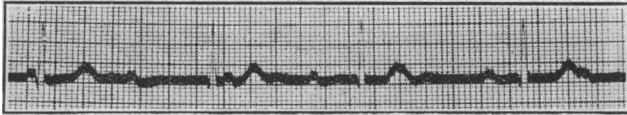


FIG. 6.—Case 2, 1944. Complete heart block; ventricular rate 42 per minute (lead II).



FIG. 7.—Case 2, 1945 (lead II).

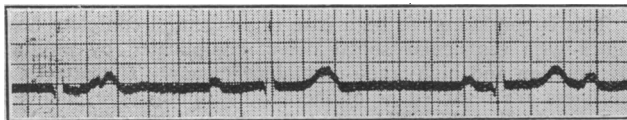


FIG. 8.—Case 2, 1946 (lead II).

years after the slow pulse was noted. The severity of the attack of diphtheria, the fact that the cardiac condition was regarded as grave at the time, and the absence of an associated congenital lesion raise the possibility that this is a post-diphtheritic lesion.

**Case 3.**—A young man (D. R.) was first seen on Nov. 22, 1946; he was then 18. His father stated that he had been told shortly after the child's birth that the heart was defective. The patient never suffered from rheumatism, chorea, or diphtheria, and throughout his boyhood he was free of symptoms. He went away to boarding-school and has since been doing heavy work on his father's farm. In February, 1946, he developed a pyrexial illness. The abnormal temperature lasted three days; on the tenth day the patient had an epistaxis followed by a series of faints occurring as often as one every minute. After three days these ceased; he has had none since. However, he

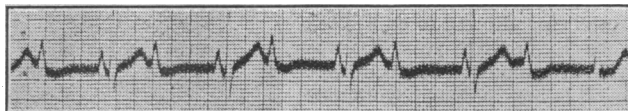


FIG. 9.—Case 3, 1946. Complete heart block; ventricular rate 42 per minute (lead II).

has never completely recovered from this illness and has since been listless, disinclined to do much, and readily fatigued.

Examination revealed the presence of aortic incompetence with a long diastolic murmur down the left border of the sternum and a systolic bruit at the apex. The skiagram showed considerable left ventricular enlargement; the B.P. was 170/60 and in keeping with the valve defect. The electrocardiogram (Fig. 9) showed complete heart block with a ventricular rate of 42 per minute.

This is regarded as a case of congenital aortic incompetence with complete heart block. For 17 years the patient was symptom-free until February, 1946, when he developed fainting attacks of the Stokes-Adams type followed by incipient heart failure.

#### Summary

Three cases are recorded of complete heart block, which was first noted at the ages of a few months, 7 years, and 13 years respectively. In all of these there is a history of transient attacks of faintness first manifest at long intervals (17, 10, and 9 years) after the heart block was discovered. In two of the three cases there is an associated congenital heart defect: in one, patent ventricular septum; in the other, aortic incompetence. The third case is regarded as free from a congenital heart lesion.

Two of the three cases are in good general health. The third case has led a normal life (including, up to the age of 17, five years at a boarding-school and two years working on a farm) although the lesion was noted shortly after birth.

Two of the cases (1 and 2) had diphtheria; two of the three cases (1 and 3) are certainly of congenital origin; Case 2 is regarded as diphtheritic in origin.

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## TONSILLECTOMY AND ADENOIDECTOMY UNSATISFACTORY RESULTS DUE TO CHRONIC MAXILLARY SINUSITIS

BY

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Ayrshire, 1,132 square miles in extent, partly industrial and partly rural in character, has a pre-school population of approximately 23,000 and a school population of approximately 47,000. In this county since 1936 the local authority has reserved a minimum number of 25 beds for such children as have required operative treatment for affections of the ear, nose, and throat. The number of beds at present so reserved is 34.

In the case of the children who have been dealt with under the treatment scheme in question—children who have been referred by the school medical officers or by private practitioners—the notes about the operations and the follow-up notes were made by the operator himself. The case histories were taken under the supervision of one person—the matron in charge of the hospital.

It became more and more apparent during recent years that a considerable proportion of the cases which were referred for operative treatment of tonsils and adenoids had failed to benefit thereby, even though the operations were technically perfect. With increasing frequency children who had been operated upon months or years previously were referred afresh by school medical officer or family doctor, disgruntled parents declaring that the child's signs and symptoms were much as they had been before operation or that they had become more pronounced. The position was studied, therefore, and it became evident that the unsatisfactory results were due to infection of the maxillary antra.

The following data were derived from the cases of chronic maxillary sinusitis found among the total number of cases referred for tonsillectomy and adenoidectomy in 1946. Of the 1,779 cases operated upon that year—boys and girls in equal proportion—for the removal of tonsils and adenoids, 442 (or 25% of the total) were considered to have sufficient signs or symptoms, or both, to warrant the proof-puncturing of both antra immediately before operation. (The method used was to continue lavage through the antral cannula with normal saline until all traces of pus had disappeared. Swabs were taken at once from the gross pus and sent for culture. In 106 cases no pus was

collected, because in some it passed into the nasopharynx and was swallowed or contaminated, and in others no actual infection was present. Incompleteness of reports in 24 of these 106 cases brings the number to be considered down to 82. In the remaining 336 cases—i.e., in 19% of the 1,779 cases—the material was grossly purulent, mucopurulent, or mucoid. A number of the results of swab examination were lost, however, and some of the case histories were incomplete, so that for these and related reasons 46 cases have to be deducted. The number of cases on which this paper is based is therefore 290, or 16% of the total.

**Signs and Symptoms**

In recording the signs or symptoms noticed by parents attention was paid to such matters as headaches, pyrexia of short duration and unknown origin, and repeated "bronchial attacks"—not true attacks of bronchitis—characterized by pyrexia and a hacking spasmodic cough. The following code was used: (1) Interference with breathing, day or night; mouth breathing; snoring. (2) Alteration of voice. (3) Pain in, or discharge from, ears. (4) Cervical gland enlargement. (5) Sore throat. (6) Mucopurulent nasal discharge. (7) Night terrors and restless sleep. (8) Spasmodic cough. (9) Frequent colds.

In Table I is given the total percentage incidence of each of the nine items which are covered by the code in (a) a random sample, 2,000 in number, of the cases of tonsillectomy and adenoidectomy dealt with over the past seven years; (b) 290 cases in which pus was present in the antra and was washed out at the time of tonsillectomy and adenoidectomy; and (c) 82 cases in which no pus was found, although expected on clinical grounds. In each of the three groups the total percentage incidence of certain infectious diseases is also given.

TABLE I

Percentage in group	Code Number									Infectious Diseases				
	1	2	3	4	5	6	7	8	9	Scarlet Fever	Diphtheria	Measles	Whooping-cough	Pneumonia
(a) ..	69	60	15	30	64	46	6	7	64	12	8	50	20	1
" (b) ..	57	44	19	17	36	48	27	36	59	5	3	60	33	9
" (c) ..	73	46	31	21	46	57	29	39	74	6	2	64	32	6

It is of interest to note that glandular swelling was twice as common in uncomplicated cases as in cases with sinusitis, and that night terrors and spasmodic cough were five times more common in the latter group than in the uncomplicated cases. Certain signs and symptoms—viz., those indicative of sinusitis—noticed by the nurse, the surgeon, and the anaesthetist were also recorded. Thus the nurse, on the morning of the operation, made each child blow his nose into a swab; each case in which there was considerable purulent discharge was recorded as "dirty nose." The surgeon recorded the presence of such signs as nasopharyngeal discharge of purulent or mucopurulent material; pus under, around, or above the inferior turbinals; dermatitis of the nasal vestibule and of the upper lip; and a pinkish tinge of all the structures of the middle ear. The anaesthetist kept in mind the fact that there is a greater tendency for a patient with maxillary sinusitis to cough in the initial stages of anaesthesia with ethyl chloride or gas, oxygen, and trilene, and that when a direct laryngoscope is used for endotracheal intubation the anaesthetist commonly notices a marked general congestion of the larynx and the presence of copious pus.

**Operation Findings.**—These are given in Table II. The condition of the tonsils is classified as follows: (1) Tonsils

"normal": no macroscopic evidence of sepsis on closing the guillotine. (2) Tonsils "septic": some pus extracted on closing the guillotine. (3) Tonsils "very septic": large quantities of pus extracted on closing the guillotine. Of the adenoids, one + sign indicates a normal quantity of tissue, two + signs a mass causing considerable obstruction, and three + signs a very large mass.

TABLE II

Operation Findings	Tonsils Normal	Tonsils Septic	Tonsils Very Septic	No Adenoids	Adenoids +	Adenoids ++	Adenoids +++
Percentage in group (a)	23	50	27	27	18	46	9
" (b)	11	66	23	24	61	14	1
" (c)	3	55	42	8	60	32	—

It will be noted that in group (b)—cases complicated by the presence of sinusitis—the incidence of abnormal tonsils was high (89%) whereas that of abnormal adenoids was low (15%).

**Post-operative Findings.**—The throats, which were examined night and morning during the 48 hours after operation, showed much more purulent material in the complicated cases than in the uncomplicated. There were long streams of purulent discharge flowing down the posterior pharyngeal wall, and the nasal discharge was often profuse also.

**Seasonal Incidence.**—There was no appreciable difference, month by month, in the proportion of the complicated cases in relation to the total number.

**Sex Incidence.**—Boys constituted 54% of the 290 cases, girls 46%.

**Locality.**—The 290 cases with sinusitis came from 56 different towns or villages. The county medical officer of health, whose comment was invited, replied that he could find no ruling factor.

**Social Position.**—This appears to have no bearing on the incidence of the condition, for the percentage of complicated cases was 22% of a smaller series of tonsil and adenoid operations done in nursing-homes during the same year.

**Age Incidence.**—This is shown in Table III. So few cases fell in the last two age groups that the percentage figures shown are of little value.

TABLE III

Age in Years	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Per cent of total (1,779)	12	19	28	16	22	25	17	13	16	18	25	11	14	14	25

**Bacteriological Findings.**—One single type of organism was present in 35% of the cultures, while 2, 3, or 4 different organisms were present in the others. The most common single type of organism was *Streptococcus viridans*, which was found in 11% of the total. *Micrococcus catarrhalis* was present in 49% of all the cultures, *Str. viridans* in 38%, diphtheroids in 25%, *Staphylococcus albus* in 23%, *Staph. aureus* in 17%, haemolytic streptococci in 8%, pneumococci in 6%, *Bacterium coli* in 1%, *Pseudomonas pyocyanea* in 0.7%.

**Results of Treatment**

The children were asked to report at follow-up clinics three months after the date of operation. Cure was considered to be complete when all signs and symptoms had disappeared, the opinion being confirmed by radiographic examination in many cases. Of the 290 cases 29 failed to report, 133 were completely cured, and 128 were still unsatisfactory. Of the 82 children in group (c), from whom no pus was obtained on washing out the antra at the time

of tonsillectomy and adenoidectomy although the clinical picture suggested that it was present, 78 attended again, and of these 64 were cured and 14 still showed clinical and radiographic evidence of chronic antral infection. Investigation failed to show that it was easier to eliminate one particular organism or group of organisms than another.

Before 1946 the use of Proetz suction with 0.5% ephedrine in normal saline gave some satisfactory results, but this method was not found suitable for the great majority of these cases because of the large area over which the patients were scattered and the need for repetitions of the treatment. Instillation, after antral wash-out, of "sulfox" and penicillin (10,000 units in 1 ml. of fluid) into different series of cases proved to be no more effective than ordinary antral wash-outs, nor did the use of neutral acriflavine or boric-acid lotion prove to be superior to normal saline.

The unsatisfactory cases reported once weekly for an antral wash-out under general anaesthetic. If the condition was not clear by the time six wash-outs had been given, the children were admitted to hospital for a double antrumotomy; this was followed by five days' treatment by chemotherapy and full doses of penicillin. It is too early yet to assess the results of this last method of treatment.

### Comment

Adenoidal enlargement, which in this area at least has been seen much less often in recent years, is certainly not related to sinusitis in children, but diseased tonsils are closely associated with the condition, although there is no indication whether tonsils or sinuses are diseased first. During 1946 about 50% of the cases of sinusitis were cured by one antral wash-out combined with the removal of tonsils and, when present, adenoids. Whether the antral wash-out was necessary is problematical, but during the present year no antral wash-outs are being done at the same time as tonsillectomy and adenoidectomy. This year the cases of clinical chronic sinusitis are being noted, and the parents are being informed that a nasal condition is also present and that they will be asked to bring their children back in three months' time. It is hoped in a year's time to give comparative figures for cases of chronic sinusitis treated by tonsillectomy and adenoidectomy alone.

### Summary

Analysis of the 1,779 cases in Ayrshire operated on for tonsils and adenoids in 1946 has shown that unsatisfactory results following tonsillectomy and adenoidectomy are due, in the great majority of instances, to the presence of chronic maxillary sinusitis, a condition which in children is often associated with night terrors, restless sleep, chronic cough, headache, and pyrexial attacks of short duration. Maxillary sinusitis in children of this particular area does not appear to have any direct connexion with climate, diet, housing conditions, previous infectious diseases, or infection with any particular organism.

I should like to acknowledge the help given to me by the Matron and the nursing and clerical staffs of Seafield Children's Hospital, Ayr, in compiling the figures recorded above.

The Registrar-General announces that from Monday, Dec. 15, a new and short form of birth certificate, costing sixpence, will be available showing only the name and surname, sex, date of birth and (where possible) place of birth. There will be no particulars of parentage or adoption. In the case of births registered in England or Wales application can be made to the Superintendent Registrar of the district in which the birth occurred or to the General Register Office, Somerset House, London, W.C.2. A short certificate can also be obtained from the local Registrar at the time of registration of the birth. Where births have been registered abroad and entered in Army, Air Force, Consular, or Marine records deposited with the Registrar-General, certificates can be obtained only from the General Register Office, Somerset House. This applies also to certificates relating to adopted children.

## Medical Memoranda

### "Spontaneous Rupture" of Spleen Associated with Infective Mononucleosis

Although it is well known that spleens that are enlarged in fevers such as malaria are very easily injured, the following case of so-called "spontaneous rupture" in infective mononucleosis seems rare enough to be worth recording.

#### CASE HISTORY

An airman aged 25 was admitted to hospital early one morning with the "provisional diagnosis" of a perforated peptic ulcer. He had been taken off a train in which he had suddenly become prostrated with severe abdominal pain. His previous movements are of interest: he had travelled in overcrowded trains for several hours, and on the last lap of the journey he had been sitting doubled up on a kitbag in one of the corridors. An hour or two before the onset of the acute symptoms he had experienced a mild pain in the left side which gradually passed off.

On admission he was found to be very restless and in too much pain to answer questions coherently. He was considerably shocked, and there was a board-like rigidity of the abdomen. The clinical picture was strongly suggestive of blood in the peritoneum, but it was difficult to reconcile this with the history given. The extreme restlessness was all against the presence of a perforation. The temperature was 100° F. (37.8° C.).

Laparotomy was performed through a right upper paramedian incision, and the peritoneum was found to contain a large quantity of dark blood. The spleen was twice the normal size, and there was a subcapsular haematoma, the capsule having ruptured near the lower pole of the organ. Splenectomy was carried out without difficulty and the abdomen closed.

Post-operatively, plasma and glucose-saline infusions helped to combat the shock, but later in the day the temperature rose to 102° F. (38.9° C.). A blood examination showed: R.B.C., 4,380,000 per c.mm.; Hb, 84%; colour index, 1; leucocytes, 29,600 per c.mm. (polymorphs, 44%; lymphocytes, 45%; monocytes, 11%); platelets, 512,000 per c.mm. The red cells were normal in all respects, but many of the lymphocytes were irregular in size. The result of a Paul-Bunnell test the following day was positive in serum dilutions 1 in 3 to 1 in 12, and negative from 1 in 24 upwards; this titre increased, and one week later there was a positive result from 1 in 3 to 1 in 24, with negative findings from 1 in 48 upwards.

During the first post-operative week the temperature "swung" between 102° and 100° F., and there were a few palpable lymph nodes in the axillae and left posterior triangle of the neck. The results of absorption tests against both guinea-pig kidney and ox cells were negative in dilutions from 1 in 3 upwards, suggesting a serum-sickness reaction.

Although the absorption tests did not give confirmatory evidence of glandular fever, the blood picture, then and subsequently, was characteristic of that disease. A later count showed: R.B.C., 5,100,000 per c.mm.; Hb, 100%; colour index, 1; leucocytes, 11,200 per c.mm. (polymorphs, 40%; lymphocytes, 57%; monocytes, 1%; basophils, 1%; eosinophils, 1%). Sections of the removed spleen revealed the normal splenic architecture and a gross infiltration of the parenchyma with lymphocytes and monocytes, all intermediate types being seen.

In the absence of a sufficient titre in the Paul-Bunnell reactions, and the fact that the absorption was not the type usually seen in infective mononucleosis, it is difficult to be certain of the diagnosis of infective mononucleosis. On the other hand the blood picture and splenic histology were characteristic of this disease. The patient had not been abroad, and at no time was there any evidence of malarial parasites.

Unfortunately this patient developed a left-sided pleural effusion, which doubled his recovery time but did not affect his ultimate full recovery and return to duty.

#### COMMENT

The spontaneous rupturing of a spleen in glandular fever must be a comparative rarity, but this case proves it to be an actual possibility, the trauma having been no more than "subminimal." It would appear wise, therefore, to bear this in mind when treating known or suspected cases of this disorder and when diagnosing an unexplained abdominal crisis.

My thanks are due to Dr. J. H. Gubbin, medical superintendent, E.M.S. Hospital, Salisbury, for permission to publish this case.

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