

Periosteal sarcoma in the maxilla rarely attacks the facial surface. It may, however, originate from the muco-periosteum of the antrum or invade that cavity from outside. Its course is then determined by the anatomical conformation of the region. Thus it may spread inwards to the nose, downwards to the palate, backwards to the zygomatic and temporal fossæ, through the sphenomaxillary fissure into the orbit, and through the sphenoidal fissure to the base of the brain.

In this course it is mimicked by simple or malignant tumours, which, arising in the naso-pharynx, push their way into the antral cavity. In a case of a maxilla thus invaded and distorted an angio-fibroma arising in the naso-pharynx produced great disfigurement by insinuating its mass in the directions thus indicated.

[The patient was a boy, aged 14, and photographs taken after the removal of the maxilla and the insertion of a suitable obturator showed how little need be the disfigurement occasioned by a proceeding of such magnitude. The operation was performed by Mr. Joseph Cuning, and after-treatment was conducted by Mr. C. H. Bubb.]

Another type of tumour affecting the antrum is the carcinoma. Although the antral cavity is lined by ciliated columnar epithelium it is curious to note that any other type than the squamous carcinoma is very rarely met with. It is possible that this tumour, too, originates from the enamel organ islets embedded in the alveolo-dental periosteum. The onset of this tumour is very insidious and is an affection of the fifth and sixth decades. Its presence is at times indicated by a niggling pain for which a supposedly peccant tooth is extracted. The socket does not heal but is quickly occupied by friable soft growth indicating that already the cavity of the antrum has been invaded to its utmost capacity. Careful observation in such a case will usually show a slight puffy swelling immediately below the corresponding infra-orbital margin, and the history of a blood-stained nasal discharge on the same side will be elicited. The disease, however, may occur when all the teeth on the side affected are absent. The quite symptomless way in which the antral cavity is invaded by this type of squamous carcinoma has caused it to be known as the epithelioma térébrant or boring epithelioma.

Maintenance of Function.

I do not propose to discuss the operative technique demanded for the removal of these tumours of the mandible and maxilla, but I wish to draw your attention to the steps necessary to minimise deformity and maintain function. In the case of the mandible, removal of half the bone will permit muscular action to pull the sound half in a direction downwards, inwards, and backwards. If such a position be allowed to ensue any hope of good functional result may be dismissed as impossible. It, therefore, behoves the surgeon to adopt measures to prevent such happening, and to this end it is his bounden duty to call to his aid a trained dental surgeon familiar with the methods of controlling distortion.

The secret of success is the immediate splinting of the mobile half mandible on the fixed maxilla in such a way that their relative positions are correctly maintained. The splint destined to be used should be planned and constructed before the operation is undertaken and should be inserted before the patient leaves the operating table. The splints used for these cases of excision of mandible and maxilla may appear to be bulky, but I have never known any untoward results or inconvenience caused by their presence. In fact, the patients express themselves more comfortable with them than without them. The splints are worn for a period of six weeks to two months, by which time the tissues are so conditioned as to permit of the insertion of a permanent apparatus which will allow the exercise of the masticatory function.

As a result of one's experience in these lesions of civil life it was possible to preach the gospel of active coöperation between surgeon and dental surgeon in the lesions of war, and although these pleadings fell for a time on barren ground they were eventually universally accepted, and laid the foundation of the extraordinarily good results obtained in the treatment of war injuries to the face and jaws. As in military surgery, so in civil surgery it must be emphasised that no surgeon who undertakes the treatment of these jaw and facial lesions can afford to act alone; he must enlist the services of a skilled dentist. The cosmetic and functional results obtained in the cases shown to you to-day will, I think, convince you that such coöperation is not merely theoretically sound but practically justified.

SENECIO DISEASE,

OR CIRRHOSIS OF THE LIVER DUE TO SENECIO POISONING.

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WE have called the condition about to be described "senecio disease" for want of a more appropriate name, and also thereby to indicate the cause. In 1918 the attention of the Union Government Health Department was called by Dr. L. Albertijn to certain cases of sickness of obscure causation occurring in the George district of the Cape Province. Whole families had suffered from time to time from a complaint, of which the chief symptoms were abdominal pain and vomiting with ascites. It was suggested that the disease was of dietetic origin, and samples of meal and wheat, bread from which was known to have been eaten for some time by affected persons, were examined. Investigations showed that the plants known as *Senecio ilicifolius* and *Senecio burchelli* grow as weeds in the wheat-fields at George, and that when the wheat is threshed seeds and portions of these plants frequently remain behind and are sold with the wheat. Should the wheat be milled in mills of old-fashioned type, where winnowing is not efficient, the seeds are also ground with the wheat grains into meal.

When making these investigations we were aware that plants of the same species are known to produce similar diseases in stock—e.g., straining sickness, stomach staggers or Moltedo disease in South Africa, Winton's disease in New Zealand, and Picton disease in Nova Scotia. Experimental animals fed on portions or seeds of these plants have developed symptoms and shown post-mortem appearances similar to those which we are about to describe in man.

Symptoms.

The disease had existed in the George and Mossel Bay districts for at least ten years previous to our inquiries, and during this period some 80 cases—many of them fatal—had occurred. At the time of our inquiry there were about 11 cases; the majority of these patients subsequently died. We found that the patients invariably belonged to the poorer class of Europeans, whose staple food was bread, and who seldom had any other food except perhaps sweet-potato. The commencing symptoms are generally those of digestive derangement, resembling those of ordinary dyspepsia, with pain in the stomach, sometimes worse after meals. The onset may be either gradual or rapid. It is difficult to obtain an accurate history from persons of the poor white class, but our information goes to show that the period between onset and death may be from 14 days to two years or more. We also learnt of a man who, after eating for two or three days bread containing senecio, was seized with violent attacks of abdominal pain which passed off without treatment. The first noticeable symptom is nausea, generally followed by vomiting, and attacks of acute pain in the stomach; these symptoms continue at intervals, becoming more frequent and severe as the disease progresses. Diarrhœa may or may not be present; blood is often vomited or may be passed in the stools; the liver soon becomes enlarged, and ascites rapidly develops in all severe cases; in no fatal case investigated was dropsy absent. The temperature is generally normal or subnormal; signs of collapse often come on quite early in the disease. Distension of abdomen is considerable and frequent "tapping" has been resorted to by medical men in attendance.

Examples of Cases Seen.

CASE 1.—W. B. L., European male, aged 11, seen on April 24th. Temperature normal; tongue coated; pulse rapid; patient stupid and incoherent owing to being under influence of morphia to relieve attacks of acute abdominal pain. First complained of feeling ill on

April 1st; complained then of intense abdominal pain; was put to bed on 2nd; abdominal pain followed by vomiting after each meal; blood noticed in vomit about 5th; abdomen became enlarged and when seen by doctor on 8th was filled with fluid; patient was tapped about 15th. On 24th patient very collapsed; abdomen filled with fluid; liver enlarged; patient extremely emaciated; was being fed on fluids, but attacks of vomiting frequent; had some diarrhoea with blood in stools, but had been kept under influence of morphia during past five or six days, since which time diarrhoea absent; patient obviously in intense pain; first heart sound extremely feeble; patient appears to be dying. Died on 26th.

An elder brother died with similar symptoms three weeks previously. Two other brothers are suffering from same disease and are in bed in adjoining room.

CASE 2.—C. E. L., brother of above, aged 16. Symptoms almost identical with those described in Case 1. Illness commenced about April 3rd. Patient is in bed; has an expression of fear; tongue coated; temperature normal; tosses about every few minutes, writhing with pain; keeps hand over stomach; vomits most of food given him; specks of blood noticed in vomit on several occasions; breath extremely foul-smelling; liver difficult to make out; abdomen distended with ascitic fluid; has been tapped twice; no diarrhoea; urine contains albumin; pulse running and feeble. Died May 9th.

CASE 3.—A. L., aged 12, became ill same week as previous cases; has had similar symptoms but not so acutely ill; ascites present; enlarged liver can easily be made out.

CASE 4.—M. M., fairly well-nourished European girl. Has had slight attacks of vomiting accompanied by pain in the gastric region for past few weeks; liver enlarged and ascites present. Appeared to be mild case of senecio disease and was sent to the New Somerset Hospital for observation under care of Dr. Hugh Smith. By kind permission of the superintendent (Dr. A. C. Seale) I am able to give the following extracts taken from the hospital notes: "Admitted April 12th. Diagnosis: cirrhosis of the liver. Address George. Age 14. History: 23 days ago patient noticed that abdomen was swollen. Later there was pain around umbilicus. Swelling and pain increased. Vomiting with diarrhoea at first. Condition on admission: Abdomen large and filled with ascitic fluid. Tongue covered with furry white patches. Herpes on mouth. Urine contained no albumin. Temperature subnormal. Abdomen tapped April 23rd, when 354 of fluid were drawn off. Patient while in hospital had very little pain. Abdomen tapped again April 29th. Apart from tapping the only other treatment was dietetic and the patient was given a mixture containing strophanthus, squills, and buchu. The abdomen gradually became less in size, and patient continued to improve so much that she was allowed to go to a convalescent home for a few days prior to returning home. At this time she had a violent attack of abdominal pain and vomiting, the vomit containing specks of blood. Her condition subsequently continued to improve, and she was allowed to return to George on June 18th."

CASE 5.—J. D., European male, aged 19. Three years back brother died with symptoms of senecio disease. J. D. has had disease two years. Commenced in usual manner—ascites accompanied by gastric pain and vomiting. Abdominal pain and vomiting now considerably less. Patient extremely emaciated; abdomen has been frequently tapped.

Incidence, Prognosis, and Treatment.

Most of the cases investigated were in Europeans, and the majority in children. Prognosis is generally bad, but is dependent on many circumstances. The disease is essentially a case for prevention rather than cure, and the Government has taken action on these lines. Once the disease shows itself, treatment of symptoms as they present themselves is all that we can suggest.

Post-mortem Appearances of Organs.

The liver, in what seemed to be a recent fatal case of this disease in the George district, was increased in size, edges rounded, and on the surface well-defined, slightly raised areas of a deeper colour than normal were noted. On cutting into these portions they were found to be engorged with blood and to vary in size from that of a hazel nut to a walnut. Microscopic examination of sections showed the capillaries between the hepatic cells to be distended with blood, the central venule dilated, and the liver cells reduced in size, some containing pigment of a brown colour and others fatty particles. The more advanced cases showed similar sized areas, but were of a lighter colour than the liver substance, and on microscopic examination the usual round-celled infiltration and formation of new fibrous tissue—met with in cirrhosis of the liver from other causes—was the most marked change.

The stomach was, as a rule, normal in size. In two fatal cases of the disease reported by local medical practitioners the contents were stated to have been "dark-brown coffee ground material." In the specimens examined in the Government laboratory numerous minute, dark-coloured, circular spots were noticed on the inner surface, varying in size from that of a pin's head to that of a pea. The area of the stomach affected was always the larger curvature, beginning $1\frac{1}{2}$ inches from the pylorus and extending along the lower part of the larger curvature for 3 inches. On washing under the tap these dark-coloured spots appeared as tiny ulcers, some very superficial, but the majority extending through the mucous coat; the bases appeared covered with hæmorrhage from small eroded vessels. With the exception of marked congestion of the kidneys the other organs examined were normal.

Dr. F. T. Waldron, of Mossel Bay, held a post mortem upon a girl, aged 13 years, who had been ill from this disease for five weeks, and reported:—

"Stomach much dilated. Contents: altered blood, many small ulcers towards pyloric end. Liver not increased in size; light-coloured areas showing cirrhotic change."

Animal Experiments.

A number of feeding experiments were conducted upon guinea-pigs and white rats with meal suspected of being infected with senecio heads, and also with dried flower-heads and seeds of both *Senecio ilicifolius* and *Senecio burchelli* added to their ordinary food.

All the experimental animals became very emaciated in spite of the fact that they consumed a normal amount of food. One guinea-pig out of 12 under experiment died after feeding for ten weeks on various quantities of dried ground-up seed-heads and tops of plant identified as *Senecio ilicifolius*. The post-mortem findings in this guinea-pig were almost identical to those in the human subject referred to above—viz., liver mottled, showing to naked eye well-marked areas of a lighter colour than normal, which on microscopic examination were found to be due to round-celled infiltration—both intra- and inter-lobular—with the formation of new fibrous tissue. The stomach and upper part of duodenum contained dark-brown fluid (altered blood), and many small specks of blood were found adherent to the stomach wall, chiefly in the neighbourhood of the pyloric end; on washing the blood away numerous minute ulcers could be made out with a hand lens.

Practically identical appearances were found upon post mortem of three white rats, which died after having been fed daily for nearly four months on 3 g. of ground-up heads of *Senecio ilicifolius*, and in one rat which for three weeks had had 3 g. daily of *Senecio burchelli*. In the three rats fed on *Senecio ilicifolius* the livers were contracted and distinctly granular on the surface; in the rat fed on *Senecio burchelli* the liver was congested, but showed no evidence of contraction. The stomach and small intestine of all the rats contained dark-brown, blood-stained material. Fresh blood flakes were noticed on the stomach walls in the pyloric region, and after washing this away very minute pin-point ulcers could be made out.

We recognise the incompleteness of our investigations, which were unfortunately interrupted by the epidemic of influenza which swept South Africa in 1918. Further inquiry and research are necessary, but it seems desirable to place our preliminary investigations on record.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

THE FAMILY HISTORY IN A CASE OF ANGIO-NEUROTIC ŒDEMA.

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Angio-neurotic œdema is encountered with sufficient frequency to preclude its consideration as a rarity, but the very definite hereditary element in this case justifies its annotation. Other elements in the case and in the collateral family cases support suggestions with have been made regarding the ætiology of the condition.

Miss M., aged 21, was seen by me on the evening of August 20th. She stated that for the previous three days she had suffered from a persistent headache and a sensation of constriction of the upper part of the abdomen. On the afternoon of this day sudden swelling had appeared on the right side of the face, and had spread rapidly. By evening she had intense swelling of the whole of the right side of the face. The skin was tense, white, and shiny, the eye was completely closed, and opening of the œdematous lids showed œdema of the palpebral but not of the ocular conjunctiva. The swelling did not spread above the level of the supra-orbital ridge, and its lower margin faded into the submaxillary area. The interior of the mouth was not affected. There was no pain or tenderness, and no abnormal sensations or sensibility in the affected area. She was given a saline aperient, and put on 15 grains of calcium chloride four-hourly. By the following morning the condition was subsiding, and by that evening the face was approaching its normal appearance, though slight œdema persisted until 48 hours or more after the onset.

She informed me that from her earliest years she had been liable to "bilious attacks," characterised by headache, and sensations of