2. The method has been put to a very severe test, inasmuch as all cases that were not suitable, or were in too bad a condition, for suprapubic prostatectomy were, provided they were not moribund, treated by it.

3. The immediate and remote complications and results are described.

4. Normal relief was obtained in 50 per cent. of the cases, and this standard of relief has been maintained for over five years. By using a little discrimination in the selection of cases, and with increasing experience, the proportion of cases enjoying normal relief would probably exceed 80 per cent.

5. The death rate directly attributable to operation by this technique is very low, even when the worst possible risks are dealt with. By eliminating the very bad risks it can probably be reduced to less than 1 per cent.

RESIDUAL INFECTION OF THE JAWS

BY

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"Residual infection" is a term employed in dental surgery to describe an obscure and indefinite condition occasionally met with in edentulous mouths, or in areas from which teeth have been removed. The condition has recently aroused much interest, but as yet the bone pathology has received little attention. It is proposed in this paper to review the pathology, aetiology, and treatment of residual infection with reference to cases which have come under the writer's personal observation.

The Condition Described

Clinically, a case of residual infection presents certain definite features. The patient is unwell himself, and has the appearance of a mild toxæmia; he is easily tired, and finds difficulty in concentrating his attention on any one subject for a prolonged period. When the upper jaw is affected antral disease is frequently present, and rheumatic pains and digestive disturbances are common. On examination the mucous membrane covering the affected ridges is found to be red and inflamed, and a number of pin-point ulcers, white in colour, are sometimes noted. The area is tender and the underlying bone may be rough, especially in the lower incisor region. The x-ray appearance is difficult to describe. In the lower incisor region the appearance may be that of an excrescence, while in the upper jaw the usual appearance is one of ill definition of the bony trabeculations.

The final diagnosis is made by culturing organisms taken from the affected region by means of a small round-headed dental burr, which is dropped into a broth tube. Cultures from positive cases are generally pure, and the infection is most frequently streptococcal in nature.

These patients have usually had very badly infected teeth, which have been removed by forceps. The infected bone has not been removed, and, because of poor resistance on the part of the patient, or as a result of some other factor, resolution of the alveolar bone does not take place, and the condition of chronic infection becomes established.

Treatment

The condition requires treatment not only of the local symptoms, but also of the general debility. Medical diathermy has been recommended, but in the writer's experience it does not produce a permanent cure. Operative treatment can be very satisfactory if it is thorough, but the mere removal of any bony excrescence is not sufficient. This may relieve dental discomfort, but will not benefit the patient's general health. It is essential to

remove as much as possible of the septic bone, while maintaining the shape of the alveolar ridge to assist in the subsequent fitting of dentures. When there is widespread infection of bone the operation may be done in several stages, using a local anaesthetic. It may, however, be more satisfactory to give an intratracheal anaesthetic.

A horizontal incision is made in the muco-periosteum on the outer side of the ridge, approximately midway between the crest and the sulcus, and the muco-periosteum is reflected from the ridge and held aside. With a sharp chisel the outer compact layer of bone is pierced, giving access to the cancellous portion. The soft bone lying between the outer and inner alveolar plate is curetted away and the resulting cavity swabbed out with acriflavine in normal saline (1 in 1,000). The area is then packed with acriflavine in glycerin for a period of five minutes. This produces a hyperaemia, and, in consequence, the tissues are thoroughly flushed out. All sharp edges of bone are trimmed off and the soft tissues carefully sutured in place.

Post-operative treatment consists of rest for several days after the operation. A mildly antiseptic mouth-wash is used every four hours, and pain can be controlled by the use of aspirin. A plaster of hot antiphlogistine, applied externally to the face, is very soothing. The sutures are removed on the fourth day, and pain and swelling have usually gone by the seventh. Dentures may be fitted in approximately four weeks after the operation.

Case Records

The following are four selected cases which illustrate the results obtained.

Case 1.—The patient had suffered from ill-health for many years, the chief trouble being arthritis of the hip-joint. He had had antrum, appendix, and teeth operated upon. For two years after the removal of the teeth his dentures were troublesome. X-ray examination showed the bone in the lower premolar, lower central incisor, and upper molar regions to be abnormal. A spear-point culture from the lower incisor region gave a growth of *Streptococcus haemolyticus*. At operation soft bone was removed from the affected regions. Three months after the operation dentures were fitted. These proved comfortable, and the general health was better.

Case 2.—The patient was suffering from bilateral antral empyema of fifteen years' duration. The radical operation had been performed and all the teeth extracted ten years previously. When the antral cavities were washed out pain was felt in the molar regions. X-rays showed dark areas in the upper molar and premolar regions. Spear-point cultures gave growth of *Streptococcus haemolyticus* and *Staphylococcus aureus*. The infected areas were curetted, and within two months the discharge had ceased and dentures were fitted.

Case 3.—The patient had bilateral antral disease, and the ridges of the upper jaw were tender to pressure. X-ray examination showed abnormal bone in the upper premolar and molar regions. The outline of the tooth sockets could be seen in the incisor region. Spear-point culture gave growth of *Streptococcus haemolyticus*, non-haemolytic streptococcus, and *Staphylococcus aureus*. A quantity of diseased bone was removed and the antral disease cleared up.

Case 4.—The patient had suffered from sciatica for more than a year, and manipulative treatment had given no result. X-ray examination revealed areas of bony rarefaction in the upper right first premolar region, this tooth being absent. Spear-point culture gave *Staphylococcus aureus* in pure culture. The affected area was curetted and a vaccine was prepared from the culture. Three months later the sciatica was gone, and the patient was enjoying normal health.

I wish to acknowledge indebtedness to Dr. Hanschell and Mr. Walters for facilities for laboratory work, and to Captain W. A. D. Drummond for assistance on the clinical side.

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