The lessons that might be learnt from these observations are : (1) Antibiotics, though of immense value in the treatment of acute infection, especially the localization of the disease in the breast, have their limitations. (2) The treatment of a localized collection of pus is still by surgical drainage, the timing of which is now as important as ever.

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PROSTHETIC MUCOSAL HYPERTROPHY IN THE MOUTH, SIMULATING MALIGNANCY

BY

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Now that a realization of the importance of early diagnosis and treatment of cancer is spreading, not only in the medical profession but among the lay public, it is more than ever necessary to separate those benign lesions that mimic malignancy. This paper seeks to focus attention on one type that is common enough to merit detailed discussion—the mucosal hypertrophy due to chronic irritation by dental prostheses. Experience both at a large centre dealing primarily with cancer and at a general hospital dental department shows that this lesion is a regular cause of suspicion and alarm among patients, their general practitioners, general surgeons, and dental surgeons. Descriptions of the lesion are hard to find outside the dental literature. The only account that I can trace in recent general medical literature is by Simmons (1941). More recently, recognition seems to be increasing among dental surgeons. With the relative increase of the older age groups, and the increased number of dentures supplied under the National Health Service, many more of these lesions are to be expected in the future.

Clinical Picture

There are two principal sites : (1) the alveolo-buccal sulcus, immediately adjacent to the alveolus, more commonly lower than upper ; and (2) the hard palate, more or less centrally grouped round the midline.

First Type (Alveolo-buccal).—The typical lesion is a projecting elongated fleshy mass or tag on the mucosal surface adjoining the outer side of the edentulous alveolar margin (Figs. 1 and 2). Its length, parallel with the alveolus, ranges from a few millimetres to several centimetres, and its width up to about 1.5 cm. Its surface is ridged, with one or more deep furrows, and if the patient inserts his denture the edge can be seen to lie accurately in, or slip easily into, a furrow. The alveolus is atrophic and the denture fits very loosely ; usually it will be found to be an old one, commonly dating back ten years or more. The mass is fairly soft in the early stages, becoming harder with age and fibrotic changes, but there is not the spreading induration at the base that characterizes

malignancy. There may be ulcerations of the furrow with a little bleeding ; inflammation may cause tenderness and increased induration at the base, which can arouse suspicion of malignancy. The patient may complain of a little lump which has inconvenienced or alarmed him, or of intermittent pain due to sepsis. In some cases the lesions are not noticed by the patient at all, but are discovered by the dental surgeon when the patient attends for new dentures. Histologically there is considerable acanthosis and thickening of the surface epithelium but no evidence of invasion ; there may be increased fibrous tissue secondary to inflammatory changes.

Second Type (Palatal).—Here the presenting lesion is on the hard palate, in the form of one or more flat or pedunculated papillomatous patches, typically a few millimetres across. There may be a complete ring of separate or fused patches, corresponding with the relief chamber or suction ring on the upper denture. The surface of the denture may be roughened and irregular. Ulceration and bleeding are uncommon. The patches may also appear at the posterior end of the hard palate, on a transverse line due to the "food line" at the back of the denture.

Case Material

The clinical material over the last eight years at the Sheffield National Centre for Radiotherapy has been reviewed. Twenty cases were found ; 10 of these were of the first type, 8 of the second, and 2 were in atypical sites, and not definitely of similar nature. (These numbers are small in comparison with the material in a dental department ; for example, at the Sheffield Royal Hospital 24 cases were seen in the dental department in a single year (1951) and approximately the same number were seen in the facio-maxillary surgical unit.)

Alveolo-buccal Cases.—Of the 10 cases in this group nine were in females. The lower jaw was the site in all but two. This preponderance in females and the lower jaw was also found by Simmons (1941). Ages ranged from 37 to 78, the mean being 51 years. The length of history varied between three weeks and three years, usually two to four months. Most lesions were 1–3 cm. long ; one unusual case showed hypertrophy extending symmetrically along nearly the whole length of the lower alveolus on both sides. The age of the denture was not routinely recorded in all cases, but was typically at least several years, the oldest set being 16 years.

Palatal Cases.—In the eight cases the sex distribution was equal. Ages ranged from 39 to 75, the mean being 63 years. The length of history ranged from a few weeks to a few months. None of the individual lesions was larger than 1 cm.

Atypical Cases.—The first case was a proliferative papilloma, 2 cm. across, on the floor of the mouth just behind the alveolus. The other was a hypertrophic patch at the posterior end of the lateral border of the tongue, apparently an enlarged papilla.

Treatment

The only danger these lesions are likely to cause arises from a mistaken diagnosis of cancer leading to radical

FIG. 1

FIG. 2

FIG. 1.—A typical hypertrophic mucosal lesion on the upper alveolus. FIG. 2.—The lesion in Fig. 1 in relation to the denture.

treatment by surgery or irradiation. Simmons (1941) mentions such a case treated by implanted radium to full carcinoma-lethal dosage; the tumour itself proved completely resistant to the radiation, but there was some troublesome necrosis in surrounding normal tissue. If the possibility is borne in mind, these cases are not likely to cause real difficulty, but experience suggests that this clinical entity is not widely recognized.

The important part of the treatment clearly rests with the dental practitioner, to whom the patient should be referred. If the denture is left off, and the source of the irritation thus removed, there will usually be some improvement, with disappearance of inflammation and reduction in size of the mass, especially in recent cases. Occasionally the mass may almost completely disappear; this applies particularly to small papillomatous patches on the palate. However, it will almost always be advisable to replace the denture by a completely new model. Simple trimming or adjustment may prevent contact with the mass and remove the symptoms, but the fundamental defect—that is, the unbalanced occlusion—will remain.

How should the offending nodule itself be treated? Simmons (1941) advised excision of the ridges with the diathermy loop and coagulation of the base with the diathermy button, after which healing took place in about a month. Excision, of course, provides the speediest means of removal, and is usually to be advised, especially in the alveolar cases. The later history of the present series was as follows.

Alveolo-buccal Cases.—In all cases the patient was advised to discontinue the wearing of the denture and to visit the dentist as soon as possible. In five cases the nodules were excised by the dental surgeon, either at once or after two to three months; one was removed after eight months—this was the case mentioned above with the extensive hypertrophy all the way along the lower alveolar edge. In the other five cases no removal was carried out after the denture had been adjusted or replaced (or simply left off). The nodule regressed spontaneously, till in the course of two to six months it had either disappeared or been reduced to a tiny tag giving no trouble.

Palatal Cases.—Conservative treatment was the rule here. One nodule was removed for biopsy and the base carbolyzed. The other seven were left alone and the denture attended to; all seven more or less disappeared in one to five months.

Atypical Cases.—The papillomatous mass behind the lower alveolus was excised, as it was comparatively large (2 cm.). The hypertrophic patch on the back of the tongue was left alone, after reassurance of the patient; it did not change, but no active treatment was necessary and the patient was discharged after six weeks.

Discussion

This hypertrophic reaction to continued trauma is now mentioned and even illustrated in standard textbooks for dental practitioners (Thoma, 1941; Stones, 1951). The former calls it "areolar hyperplasia." However, it continues to arouse special interest, as evidenced by descriptions of individual cases in dental literature (Vandory, 1937; Clark, 1947; Holland, 1949). Histological examination shows no evidence of malignancy, but there is proliferation of epithelium and reactive overgrowth of granulation and connective tissue that can resemble a fibroma. Campbell (1944) describes a case that showed masses of epithelioid cells, giant cells, and dense fibrous tissue with many lymphocytes, the whole picture suggesting a sarcoïd.

Guardo (1945) calls the lesions "paraprosthodontic," and distinguishes two types—acute and chronic. The acute form heals as soon as the irritant is removed; the chronic type stops growing if the cause is removed, though excision is needed before function is restored. He mentions the possibility of malignant change, but quotes no specific instances of this; no other author among those I have

been able to trace mentions this important change as actually occurring, and one would like to have further details before accepting it. As an agent of cancerphobia, the potency of the lesion is attested by Hecht (1939) and Holland (1949); our own experience and that of any radiotherapeutic or dental centre amply underline this danger. One general practitioner was distressed (perhaps justifiably) by my not considering it necessary to take a biopsy but contenting myself with reassurance of the patient and his doctor.

Runnerstrom (1940) emphasizes the importance of servicing dentures after fitting; after dental extractions there is physiological resorption and atrophy of the alveolar process, and most sets of old dentures will be found to have incorrect relation to the jaw, with unbalanced occlusion; the lesions therefore are due primarily to lack of service, with a combination of mechanical trauma and bacterial infection.

In treatment most authors naturally favour simple surgical removal. This is certainly the best treatment for the great majority of cases, in which irreversible change with fibrous overgrowth has taken place. The present series, with appreciable spontaneous improvement in half of the alveolar cases and practically all of the palatal cases, shows that conservative treatment may sometimes be useful, if only as a preliminary measure. Even if disappearance is not complete, it may occasionally be enough for practical purposes; in any case, whatever shrinkage does occur will minimize the extent of surgery required. Active measures seem to be unnecessary in the case of small flat patches on the hard palate, as shown by the spontaneous satisfactory resolution in seven of the present eight cases. Anything larger would need active removal; advanced palatal papillomatosis and hyperplasia have recently been described by Thoma (1952) and Fisher and Rashid (1952).

Hecht (1939) is emphatic about the necessity for surgery; if the tissue returns to normal after leaving off the denture there may be a scar, which may interfere with the proper fit of a denture. He advises, for the palatal papillomatous hyperplasia, radical excision through the periosteum; this would undoubtedly be effective, but in the light of the present series seems unnecessarily drastic as a routine. In some alveolar cases, especially those in which the margin is extensively involved on both sides of the midline, it may be necessary to carry out the operation of "buccal inlay" after excision of the hypertrophic tissue, in order to leave a sulcus deep enough to give a denture adequate seating; a skin graft is inserted in the hollow outside the mandible, bridging the gap between the alveolar and buccal mucosae and folding to form a deep enough groove.

In general, therefore, surgical removal may be said to be the treatment of choice, with occasional exceptions, notably in small patches on the hard palate. In all cases the denture must be overhauled, and nearly always will need replacement; simple easing or trimming may relieve irritation for a time, but leaves the root cause—that is, malocclusion—untreated.

Summary

Attention is drawn to the hypertrophic tumours in the mouth due to irritation by badly fitting dentures. The commonest sites are the alveolo-buccal sulcus of upper and lower jaw and the hard palate. They are apt to be mistaken for malignant tumours. Treatment is usually by simple excision; spontaneous resolution may be adequate in the occasional case, especially for small lesions on the hard palate. A completely new denture is nearly always necessary.

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SIMPLE DEPRESSED FRACTURE OF THE SKULL

BY

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Whether or not to advise elevation of a simple depressed fracture of the skull which is symptomless is a recurring, albeit an infrequent, problem. Most depressed fractures are compound, and the indication for operation in these cases is absolute.

When a child is seen with a slight depression, an unbroken scalp, and a complete absence of symptoms, there may be a natural inclination on the part of the medical adviser and the patient's relatives to leave well, or what is apparently well, alone. X-ray films may merely confirm the depression and the electroencephalogram may be normal, but nevertheless a piece of the inner or vitreous table of the skull may have been driven through the dura mater into the brain. This is illustrated in the following case.

Case 1.—A boy aged 9 fell from a swing and dented his left parietal region. He was unconscious for about 20 minutes and then recovered completely and walked home. When seen at the Cardiff Royal Infirmary some five months later he had no symptoms and presented no abnormal features except a shallow depression in the left parietal region which was confirmed by x-ray examination. The nervous system was normal, as was also the electroencephalogram. At operation an in-driven fragment of the inner table of the skull was found to have penetrated both dura and brain, and to have anchored the brain at the site. A flap of bone, including the depression, was removed, reversed, and replaced after cutting away the projecting bony fragment which had entered the brain, and after smoothing the rather uneven surface of the inner table, which was now lying outwards. The boy made a good recovery, and it was concluded that freeing the anchored and developing brain was desirable in order to avoid possible complications in the future.

Depression in the Newborn Child

At birth and in infancy the skull bones are so soft that in these cases there is indentation without fracture, but it is convenient to regard them in the same category, as they are examples of traumatic depressions nevertheless.

Case 2.—A male baby delivered by forceps had a deep indentation in the left fronto-parietal region. He appeared in all other respects normal, and was seen at intervals until 2

months old; but as during this time there was no indication of the restoration of the normal contour of the skull by the disappearance of the indentation, this was effected by operation, with a satisfactory result. After turning down the scalp, a flap of bone was cut with scissors and with the thumbs the depression was pushed out and the osteoplastic flap replaced. The baby thrived and now has a skull of normal appearance, and what was a considerable reduction in intracranial capacity due to the deep indentation has been restored to normal.

Diagnosis of a Simple Depressed Fracture

A depressed fracture is usually obvious, but is not always so, especially if lying beneath the temporal muscle and its overlying fascia. In these circumstances x-ray examination in strictly antero-posterior as well as lateral planes may also fail to detect the depression. Films taken after slight rotation of the skull will make it obvious, however, as in the following case.

Case 3.—A naval stoker aged 26 fell from a plank on to the quayside at Cardiff docks and lost consciousness, which he regained in an ambulance on the way to hospital. He developed a swelling over the right side of the forehead, on which there were some abrasions, and the left eye showed subconjunctival haemorrhage. No depression could be felt, but slightly rotated antero-posterior views of the skull showed a depressed fracture underneath the left temporal muscle. Six days after his admission to hospital the depressed part of the left squamous temporal bone was elevated after first reflecting the temporal muscle. Recovery was uninterrupted.

Any error in diagnosis is usually in the opposite direction, of suspecting a depressed fracture when none exists, and what is felt and thought to be a depressed fracture is in reality a haematoma with a soft centre and firmer periphery.

Operative Treatment

If a depressed fracture is compound the question of whether to operate or not does not arise. Operation is indicated, as it is in the case of compound fractures occurring elsewhere in the body, and for a similar reason. It is suggested that simple depressed fractures should likewise be operated upon. Two points in technique may be referred to. (1) It is advisable to operate early, before union has taken place. In this early phase the bony fragments can be elevated, but after union has occurred this is no longer possible. To try to lift up the depression, which is really a reversed bridge, is like applying pressure to the arch of a cantilever bridge, and is quite futile. In this phase a block of skull comprising the fracture should be removed, reversed, and replaced. (2) The best way to deal with the indented skull of the infant is to cut out a flap of bone with a pair of scissors, reflect it on its base as a hinge, press up the depressed area with the thumbs, and replace the flap.

Drawing of baby boy aged 2 months with persistent depression in left frontal region (Case 2).