

mercurial poisoning, etc., may be the causal factor. Finally, hysteria, anæmia, some distant disturbance (liver trouble, any abdominal disease), must not be forgotten, and, in some instances, the effect of treatment may serve to clear up the etiology.

CHAPTER VI

SURGICAL DISEASES OF THE ORBIT, NOSE, AND FRONTAL SINUS

IN this day of specialists but few diseases of the orbit reach the hands of the general surgeon. In consequence this discussion will be quite fragmentary.

Orbital *Blood Effusions* are of common occurrence. Formerly it was believed that subconjunctival effusions, appearing several hours after an injury, invariably signified a fracture of the roof of the orbit. More careful investigation has, however, shown that such ecchymoses may arise from rupture of the orbital vessels. Their source may be found within the skull, the blood reaching the orbit either through the optic foramen or through the sphenoidal fissure. It follows that exophthalmos or lateral displacements of the bulb subsequent to an injury, and combined with subconjunctival ecchymoses, can not, without further corroboration, be regarded as a proof of fracture of the orbital roof. But in fracture of the base this assumption is, as a rule, justified, for the cause of the effusion usually is due to a direct extension of the fissure at the base into the roof of the orbit.

If subcutaneous emphysema accompanies these symptoms, and the existing exophthalmos is increased by sneezing, it may be positively stated that the inner

or lower wall of the orbit has been completely broken through, and communicates directly with the nasal cavities. Effusions into the lid are due to rupture of the vessels situated anteriorly to the tarso-orbital fascia, for this structure opposes the advance of blood effused behind it.

Deep penetrating wounds, if infected; strong caustics, especially in solution, which reach the peribulbar cellular tissue through a tear, often cause rapid sloughing of the orbital cellular tissue, the acute *Orbital Abscess*. Such an abscess may also develop in the course of erysipelas, or may be due to pyæmic metastases.

The gross characteristic symptoms of this affection are swelling of the conjunctiva (chemosis), œdema and reddening of the lids, exophthalmos, the unilateral distribution of the swelling, and pain induced by pressure upon the bulb.

In this process the orbital cellular tissue is the seat of the inflammation. It is therefore easily understood that the bulb is crowded directly forward. Numerous deep incisions, extending through the tarso-orbital fascia, must be made early in order to afford free drainage.

There are cases in which the symptoms of acute orbital abscess are present, but in which the displacement of the bulb is not directly forward, but toward one side. If the process is of spontaneous origin in an individual still in the period of growth, we must think of an idiopathic diffuse osteomyelitis. It is true that this disease is very rare. I have seen only three cases. The diagnosis was easily made. The disease began with high fever (chills); appearance of the lids as seen in gonorrhœal ophthalmia (unilateral); widespread œde-

ma over the frontal bone; early fluctuation at two separate points without any intercommunication of the fluctuation; and bare bone upon making the incision. In the one case I was able to diagnose an abscess of the frontal bone itself. On trephining, the pus flowed out with a pulsating movement. Evidently the internal periosteum (dura) was dissected away from the bone, and the abscess, which pointed toward the skull, communicated by an opening with the one situated between the diploe. In one of the three cases osteomyelitic foci appeared at other sites (in the legs).

Chronic abscesses, which occur in the orbit in connection with bone tuberculosis, naturally do not displace the bulb directly forward because they are inclosed by a pyogenic membrane, and do not break into the diffuse cellular tissue of the orbit. They may point spontaneously into the conjunctival sac or may open externally. At times the bone abscess is situated at the margin of the orbit in such a way that the pus can point only anteriorly to the tarso-orbital fascia—that is, through the lid itself.

The situation of an ORBITAL TUMOUR may be determined by the same method of deduction used in connection with orbital abscesses—the displacement of the bulb. Tumours situated behind the bulb crowd it directly forward. Tumours situated to one side crowd it to the opposite side. If the bulb is displaced forward and to one side, the tumour is situated partly to the side and partly behind the bulb. The tumour may be free in the orbital cavity and movable (myxoma, cylindroma, angioma), or arise from the bone (sarcoma or osteoma of the frontal, sarcoma of the superior maxilla), or originate from the neighbouring pneumatic

spaces (tumours of the antrum of Highmore or of the frontal sinus).

It is important to judge the position of the bulb correctly when dealing with tumours of this region. If, for instance, the case is one of sarcoma of the superior maxilla, and exophthalmos is present, this condition informs us that part of the tumour must have spread behind the *bulbus oculi*. We are thus enabled to form some conception of its growth among the deeper tissues, which are beyond the reach of direct investigation.

Another symptom requires mention in the case of malignant tumours. If a tumour be benign, the movements of the bulb may be interfered with, but only in such wise and degree as is accounted for by purely mechanical causes, which are readily deduced from the size and position of the tumour. Malignant tumours, however, involve all tissues, so that very early the action of at least one muscle is completely inhibited. In consequence all movements of the bulb toward this side are entirely destroyed. If the tumour involves the bulb itself, the eyeball becomes completely fixed at an early stage.

The organ of sight requires careful observation on the part of the surgeon, even in distantly situated conditions. Ptosis and strabismus, occurring in meningitis, have already been mentioned. Lagophthalmos occurs in facial paralysis. In injuries of the cord and sympathetic, malignant tumours of the parotid gland, affecting the sympathetic, etc., the behaviour of the pupil and the position of the bulb, require careful consideration.

Various forms of ulcers appearing on the *nose* offer difficulty in their diagnosis. Cancerous, lupous, and syphilitic nodules, and the destruction of the nose consequent to them, are, as a rule, readily distinguished

one from another. Of the *Epitheliomata*, those met with on the nose are usually of less than ordinary malignancy, and clinicians have chosen a special name for them, which is still partly in use—*ulcus rodens*, Schuh's flat carcinoma, epithelioma. Epithelioma, if well advanced, is recognised, as a rule, as a superficial ulcer, consisting of an irregular, flesh-red, shiny, ulcerating surface, which is studded with small nodules. If the growth has not been smeared with irritating ointments it is covered by scanty thin secretion, and the floor of the ulcer is quite as hard in consistence as the narrow raised margin, which is composed chiefly of small, isolated nodules. In addition to the fact that this growth commonly occurs only in people advanced in years, we must further notice that neither lupus nor syphilis have so slow a course. In these slowly progressing epitheliomata one peculiarity, which is extremely misleading to the inexperienced, must be especially mentioned. This is the occurrence of a pellicle of skin in isolated spots over the ulcerating surface. This deceptive symptom must not be allowed to interfere with early operative treatment.

The spots of epidermis are really nothing but hardening of the epithelial cells of the cancer, a sort of pathological distortion of the normal formation of epidermis. The older physicians erroneously regarded it as a healing process, and used a variety of remedies in the vain endeavour to help Nature in her conservative efforts. Quite wrong! In fact, this statement applies as well to epitheliomata in other regions. If the ulcer runs a more malignant course from the very start, or gains greater malignancy after it has existed for some years, it does not differ clinically from epithelioma else-

where. Epitheliomata occurring inside the nose are more malignant than the rodent ulcer. We must not forget that villous cancer, which originates in the antrum and has escaped observation during its development, may first attract attention when it appears in the nasal cavity.

Lupus of the nose should be readily recognised. There are small nodules, the size of a pin-head, which are seen through the thinned and shining skin, and have a bluish-red colour. They are isolated or strung along curved lines. The nodules may be larger, covered with scales, and in this situation usually lead to ulceration (*lupus exulcerans*). Though the process often causes a rapid and excessive formation of small nodes (*lupus hypertrophicus*), it finally ends by marked destruction of the tissues. The process spreads to the mucous membrane of the nose—not infrequently perforating the cartilaginous septum—and exceptionally involves the mouth and gums as well. In addition to these changes, flat or irregular scars are commonly found at other spots; these can in their turn become the seat of new lupous eruptions. If we keep this picture in mind, and further remember that, as a rule, youthful individuals are attacked by the disease, a mistake is not readily made.

Syphilitic Gummata of the nose and the ulcers which develop from them may, in some instances, offer difficulty in their diagnosis. If they occur in youthful subjects, afflicted with hereditary syphilis, they may be mistaken for lupus; in older individuals they may be confounded with epithelioma. If signs of concomitant or previous syphilis appear elsewhere on the body, all difficulty is removed; if, however, such signs are want-

ing, as in hereditary syphilis, the nature of the nodules or, even more, the ulcers springing from them, are sufficiently characteristic to permit of diagnosis. The gummata are larger, separately placed, and soft (elastic). The epitheliomatous nodules are small, firm, and aggregated so as to form a flat, sharply circumscribed surface surrounded by a ridge. The lupoid nodules may be large and soft, or small and joined closely to one another; but, in either case, we find the characteristic isolated and diffusely scattered nodules, which have a bluish-red colour and shine through the thinned-out epidermis. Syphilitic ulcerations of the nose are frequently followed by destructive processes in the nasal cavity—unlike lupus, destruction of the bony septum is commoner—or in the other neighbouring cavities. Syphilitic ulcers at times heal up on one side, while the opposite edge shows a new infiltration, which is constantly breaking down. This form of partial healing causes an ulceration known as *serpiginous*.

The rare disease *Rhinoscleroma* appears in a platelike infiltration of the septum and ala of the nose, and of the upper lip, which has a characteristic, almost cartilaginous, consistence. It does not ulcerate, even after a long period, and progresses slowly in spite of all treatment.

The most frequent tumours occurring in the nasal cavity are MUCOUS POLYPI. Strange to say, they are frequently mistaken for other growths. For instance, small, round, translucent, grayish abscesses appear on the septum as the result of perichondritis. These may, upon superficial examination—and this can not be denied—appear like the rounded end of a polyp. But the diagnosis should be made by means of the broad base attached to the *septum*, their rapid growth, and

especially, if it exist, their symmetrical occurrence on both sides of the septum. If opened, they discharge pus. In children a smooth, round, foreign body, if high up, may deceive us. To guard against this error employ the sound. Beginners frequently mistake for polypi those thickenings which appear on the lower edge of the greater turbinated bone. These swellings of the mucous membrane covering the turbinated bone are red—not gray or grayish-yellow like polypi—or dark red if of venous origin. They are situated laterally, are sessile, not rounded in shape, and of much harder consistence.

The number of nasal polyps which may be present is unlimited, but, however numerous, the nose itself is never distended by them, and the nasal bones are never pushed forward. Formerly I thought this rule without exception, but after hundreds and hundreds of observations I have seen such exceptions. *Exceptio firmat regulam!* If one side of the nose is found larger than the other, the one nasal bone pushed up, the nostril of this side markedly enlarged and more distorted than the other, we must be prepared for something other than a nasal polyp. As a rule it is a sarcoma, usually a very soft sarcoma growing down from the base of the skull. These commonly appear in individuals of riper years, but I have seen them in children. The malignant nature of the doubtful growth is further confirmed if some spot of the skin of the nose shows an area covered by a fine star and netlike distribution of blood-vessels, which occur also over malignant neoplasms of the skin in other regions. In these cases one or more lymphatic glands of the submaxillary region are usually enlarged.

If the just mentioned indications of a malignant neo-

plasm of the nasal cavity are present, we must never fail to examine the nasopharynx, to carefully test the position of the bulb, and to make sure that no symptoms which would indicate that the growth originated on the basis cranii escape our notice. These symptoms will be referred to later.

In passing it may be mentioned that herniæ cerebri have prolapsed into the nasal cavity, and that their smooth, rounded surface caused them to be mistaken for polypi.

The *Frontal sinus*, the continuation of the nasal cavity, has, especially in recent days, received much attention from the surgeon. Its diseases become manifest only when distention of the cavity—that is, a swelling—appears. This distention of the frontal sinus causes not only an increased bulging of the brow, but also a swelling in the orbit. In children this swelling appears along the nasal side of the orbit, and at times, as the condition increases, results in an outward displacement of the bulb. In adults the roof of the orbit may bulge, and in some instances the bulb may be crowded downward. The causes of this displacement are blood effusions (very rare), empyema, hydrocephalus, and neoplasms. The diagnosis can be made only when we are dealing with an acute inflammatory process. An empyema is ushered in by severe symptoms—chills, delirium, strabismus. Sometimes the pus points into the interior of the skull and causes a fatal outcome. Diagnosis from a neoplasm can not be difficult, but from inflammatory conditions in neighbouring cavities, especially if the course is less acute, the differentiation may be hard to make. For instance, when the process breaks into the orbit, it may produce the picture of a periostitis of the orbit. Of more use than further hints is the following

case, in which Strohmeyer made the diagnosis through logical deduction. The case was doubtful. Strohmeyer diagnosed empyema of the frontal sinus by the severity of the onset, the violent pain on one side of the head, and the dry condition of the same side of the nose. The diagnosis was confirmed when blood and pus spontaneously discharged from the other nostril, for rupture had taken place into the sinus of the healthy side.

CHAPTER VII

DISEASES OF THE MAXILLÆ AND OF THE TEMPORO-
MAXILLARY ARTICULATION

TRAUMATA of the inferior maxillæ are so readily open to inspection that it is rare for any difficulty in diagnosis to arise. Inspection alone is sufficient, and even the laity, as a rule, know whether the bone is fractured or not.

In dealing with a *fracture*, the steplike interruption in the continuity of the teeth, the abnormal mobility, the tear in the gum and mucous membrane, and the inability to bite, are so evident that any problem of differential diagnosis need not be considered.

In reference to *dislocations* of the temporo-maxillary joint few points require discussion. This injury, which is caused by opening the mouth too wide, is the only traumatic dislocation which occurs without rupture of the capsule. The condyle, still within the capsule, is displaced in front of the eminentia articularis, and is unable to return. A symptom, which is seen only in this injury, at once results, the patient is unable to shut his mouth. This is pathognomonic.

The sudden inability to bring the jaws together renders the recognition of this dislocation so easy that a Bohemian surgeon was wont to jump up and rush with threatening fist toward any patient entering his office with his mouth characteristically open. The sudden