

had convulsions. This shows that meningitis is already present.

In certain cases we may be deceived at the beginning of the period of irritation. For instance, following a case of fracture at the base, with severe concussion, the excitement of the patient may indicate the beginning of a primary meningitis, or perhaps no more than the period of excitement following upon a severe concussion. In the latter case, suitable treatment (rest, cold, purgation, or, if the pulse is hard and slow, venesection) will soon cause the disappearance of the symptoms.

The following case was seen by me at the beginning of my surgical career: During my period of service under Lorinser there was a woman about fifty years of age in the ward. She was suffering from tuberculosis and caries of the calcaneum. Suddenly, in the course of one night she became hemiplegic. Lorinser, making his rounds, saw her only in passing on three successive days, and merely stopped to feel her pulse and to have her show her tongue. On the third day the patient died. When asked what cause of death we should put on the death certificate, he answered, "Meningitis." We were surprised when, on autopsy, purulent meningitis was really found; and were eager to discover how Lorinser was able to diagnose the case with such superficial observation. The answer which we received has always remained fixed in my mind: "As the patient was not suffering from any circulatory disease, but from caries and tuberculosis, apoplexy was unlikely. The sudden onset of hemiplegia was indeed striking, but this continually increased in severity. For on the first day the patient's tongue was protruded to one side; on the second, much more so, and on the third, even more. This pointed to a slowly progressing process, in other words, to an inflammatory affection. On the third day the patient's pulse grew slower, in spite of the increase in the paralysis, and in spite of her having suffered for weeks with fever. If you had watched the patient more carefully you surely would have discovered other symptoms of meningitis." We really discovered, upon questioning the patient in the adjoining bed, that the deceased had suffered from convulsions during the night, which the nurse had failed to report.

CHAPTER IV

TUMOURS OF THE SKULL

A SERIES of very interesting tumours are found on the skull.

The foremost in importance is *Hernia Cerebri*. Just as in all other herniæ, we distinguish hernial orifice, hernial sac, and hernial contents.

The point of exit is formed by the non-approximation of two or more skull bones. At this spot a gap exists, and the name given to each hernia depends upon the bones which have failed to come together and have thus given rise to the hernial orifice, such as a naso-ethmoidal or sphenoidal hernia, etc.

The *hernial sac* is formed by the dura mater.

The *hernial contents* varies in character.

(a) It may consist of a saclike protrusion of the arachnoid filled with cerebro-spinal fluid derived from the subarachnoid space—*Meningocele*.

(b) Of a part of the hemisphere, into which, however, the ventricle is prolonged—*Cenencephaloccele*.

(c) A more involved hernia, in which, owing to disappearance of the brain substance, the ventricle opens directly into the hernial sac.

The coverings of a hernia cerebri are composed of the meninges. In herniæ of small size their aspect may be normal; in larger ones they are, as a rule,

thinned out. The membranes may be thickened by œdema or by deposition of fat, or at times show peculiar folds resembling the skin around the navel.

Occasionally it happens that such a hernia is shut off from the cranial cavity, its point of exit closing behind it. If this occurs in a hernia situated in the sagittal suture, a cystic swelling is formed in the region of the large fontanel. Such a swelling is firmly fixed in a trough of bone. The hernia consists of a serous fluid (cerebro-spinal or arachnoidal fluid) surrounding a cheesy material (the altered brain substance).

Besides this, cysts *superficial* to the dura occur, which protrude, toward the surface, through a gap in the bones.

Next in interest are those *Blood Cysts* which communicate with the interior of the skull. They are either protrusions of the blood channels (as of the longitudinal sinus through the sagittal suture, of the lateral sinus in the occipital region), which are true analogues of hernia cerebri, or rupture of the diploic veins. In the latter case the swelling is analogous to a false traumatic aneurism, and consequently is known as a false traumatic varix (varix traumaticus spurius).

Next to be considered is the *Sarcoma of the Dura*, which penetrates the bones of the skull and then rapidly spreads in the soft parts composing the scalp. In its course it may cause ulceration of the skin, as it involves the parts over a large area.

These tumours, which form a group, have one point in common: they originate or have some connection with the interior of the skull.

As a matter of course, we next consider the tumours which take their point of origin from the bones of the

skull. Exclusive of syphilomata and of those metastatic neoplasms which, according to Kundrat, are most commonly seen in connection with primary tumours of the parotid gland, this group is represented by *Sarcoma of the Diploe*. This sarcoma, which is quite rare, starts in the diploic space, and grows both inward and outward. If, in a given case, it has perforated the lamina vitrea, it may involve the dura mater, and is then readily mistaken for a sarcoma of the dura which has penetrated the skull.

Hæmatoma of the skull occupies a distinct place in this classification, for it is situated between the bone and the periosteum.

The tumours, which are situated in the scalp itself, form a third group. They consist of sebaceous cysts, cavernous angiomas, cirroid aneurisms, papillomata, lipomata, etc., and offer no difficulty in their differential diagnosis. The only ones requiring differentiation are sebaceous cysts and dermoids. Dermoids are congenital, situated in the neighbourhood of the eye, especially about the margin of the orbit; they are more tense, usually more sessile, and embedded in a shallow trough of bone.

The *Cephalhæmatoma* of the new-born, on the whole, offers no difficulties in diagnosis. It is found in the new-born infant upon one of the parietal bones, and never oversteps the boundary of a suture. In form it may be circular, kidney, or pear-shaped. The swelling is distinctly elastic, and surrounded by a ridge. The edge may become bony if the periosteum, which has been raised by the effusion of blood, forms bony lamellæ. The bone formation may progress and involve the greater part of the swelling, so that palpation may give

the sensation of parchment crackling. As, in rare instances, tuberculosis of the parietal bone with a subperiosteal abscess of some size is found, even in infants, this condition alone requires differentiation. But tubercular abscesses are invariably less tense and never show even the least indication of bone formation. In addition, they do not occur immediately after birth.

A difficult problem is furnished in the diagnosis of a sarcoma of the dura from sarcoma of the diploe.

Let us take, for example, a tumour attached to the skull, which, from its various characteristics, is evidently sarcomatous. The tumour pulsates. A sarcoma of the dura pulsates from the fact that the brain pulsations are transmitted to it. A sarcoma of the diploe may pulsate because of its vascularity. In the first place, we try to find out whether the tumour can be reduced. If this is the case, we most likely have to deal with a sarcoma of the dura which has been forced out by pressure through the broad gap in the bone produced by absorption. At the moment at which we succeed, evidences of pressure on the brain, or irritation of that organ, may occur.

Taking for granted that the tumour can not be reduced, a sarcoma of the dura is by no means excluded if the tumour be of sufficient size. We therefore carefully look for lamellæ of bone anywhere over the surface of the growth. The occurrence of these is a decided evidence in favour of its diploic origin; it is the remains of the outer table which was raised up by the advancing growth. Especially any bony cover felt at the edge of the tumour may be considered positive evidence of a sarcoma of the diploe, for a sarcoma of the dura never shows this characteristic.

Subjective symptoms speak more or less in favour of a sarcoma of the dura, especially headache, dizziness, and vomiting, occurring before the appearance of any visible tumour.

The group first mentioned, consisting of tumours directly communicating with the contents of the cranium, must now be considered in greater detail.

The following characteristics are shown by a blood cyst communicating with the cranial cavity—i. e., ectasis of a sinus (or a false traumatic aneurism), otherwise known as a *cephalhæmatocele*:

1. The bluish colour indicates a bloody contents.
2. Great and rapid variations in volume, depending on intrathoracic pressure. When, during expiration, the pressure in the thorax is considerably increased, the tumour rapidly swells up; when the intrathoracic pressure sinks, the blood is rapidly emptied from the swelling.
3. No brain symptoms on compressing the tumour.

The question of differentiating an ordinary varix of a vein of the scalp from a *cephalhæmatocele* now arises. The diagnosis is made as follows: A varix does not refill on coughing, screaming, or during deep and long-continued expiration after it has been emptied and its base is compressed. A *cephalhæmatocele* will refill in spite of circular compression of the surrounding parts, for its blood supply is not furnished by the compressible outer veins, but is derived either from the veins of the diploe or from the superior longitudinal sinus. If we have to deal with a false traumatic varix, the skull at the point of injury is uneven.

A typical *hernia cerebri* shows the following characteristics:

1. A distinctly cystic swelling (rounded, fluctuating, translucent).
2. The swelling shows the respiratory movements, and the pulsation of the brain, but the first never to the degree shown by a cephalhæmatocele.
3. It is situated along the meeting-place of one or more of the skull bones; a bony ring can be detected at its base.
4. It is congenital, or acquired after severe injuries to the skull (in which case it may be situated in the middle of a bone).
5. In some cases compression of the tumour produces symptoms of brain compression. In many cases, however, compressibility, and, consequently, pressure symptoms, can not be demonstrated. The diagnosis is then made by means of the situation of the tumour, the gap in the bone, and the fluctuating consistence.

CHAPTER V

THE FACE: TRIGEMINAL NEURALGIA

SPENCER WELLS, the most distinguished ovariologist of our day, describes a characteristic facial expression in his work on Diseases of the Ovary. Among the profession it is usually known as "facies uterina"; he prefers to call it "facies ovariana." "The emaciation, the distinctly outlined muscles and bones, the expression of fear and of suffering, the furrowed brow, the deep-sunk eyes, the open, sharply outlined nostrils, the long, compressed lips, the drooping corners of the mouth, and the deep wrinkles which curve around it, together form a characteristic picture." This description, which accompanies Spencer Wells's illustration, is so general, that it will fail to produce in the reader's mind the deep impression created by observing one such patient. No matter how accurate this picture, no one will make a diagnosis of ovarian cyst, or even of any trouble referable to the organs of generation, by the facial expression alone. The description, however, is of importance to the beginner, because it indicates the value of detailed observation.

Since Duchenne has published his fine observations on the mechanism of facial expression, in his extensive and interesting work, a pathological facial expression is no longer an unsolved problem. In fact, such at-