The foreign bodies usually encountered in the brain are bullets, splinters of metal or fragments of bone resulting from direct blows on the head. As far as we know, however, there has been no previous report of a sewing needle having been found in the brain.

We have recently come across 2 examples of this neurosurgical curiosity; the needles were thought to have been in place 23 and 54 years respectively. Permission for surgery was obtained in 1 case and the needle was extracted successfully.

**CASE REPORTS**

**Case 1.** A 23-year-old woman began to suffer from fits 5 years previously, when she suddenly lost consciousness, with convulsions and incontinence of urine. Six months later she had a second attack and subsequently the fits recurred with increasing frequency up to once or twice a month.

On the day of the attack she usually suffered from right parieto-occipital headaches. Therapy with barbiturates was ineffective and she was referred to hospital because of worsening of her condition with four attacks in the previous 2 weeks.

The general clinical and neurological findings, including eye grounds, were quite normal, as were the usual laboratory tests and the cerebrospinal fluid.

Roentgenograms of the skull showed a sewing needle in the right parietal lobe of the brain (Fig. 1); one extremity lay close to the inner table of the skull and in its vicinity a small bony defect could be seen clearly indicating the route of entry (Fig. 2). Electroencephalography revealed a very few low-voltage sharp waves in the right parietal region, not certainly of pathological significance against a dysrhythmic background devoid of generalized paroxysmal features.

Right parietal craniectomy was performed under general anesthesia at the site of the puncture marking the point of entry of the needle. When the bone was exposed, this was seen as a hole 1-2 mm. in diameter covered by connective tissue which was bound to the dura mater. On incising the dura mater at this spot, the head of the needle came into view, projecting for about 1 mm. from the cortex of the brain which was stained with dark pigment in the neighborhood over a diameter of about 1/8 cm. The needle itself lay in a narrow cystic cavity a few mm. wide. It was removed with ease (Fig. 3) and the surrounding cyst was emptied. The needle was covered by a layer of rust. It was found on chemical examination to be made of steel.

The patient was instructed to continue taking barbiturates after the operation; during the 5 months that have passed, there have been no further fits. A recent electroencephalogram was normal.

**Case 2.** A 54-year-old woman was referred because of left-sided headache, from which she had suffered for the previous 2 years; in recent months she had complained also of a disturbance of vision.

Neurological findings were normal except for an incomplete right inferior homonymous quadrantanopia. The electroencephalogram was normal. Roentgenograms of the skull showed a sewing needle in the left...
parietal lobe of the brain (Fig. 4); in this patient, too, one end of the needle was close to the inner table of the skull.

She was unwilling to undergo any further examinations and refused operation.

DISCUSSION

Neither of these patients, nor their families, were aware of the presence of the needles, and it was assumed that penetration took place in infancy through the soft bones of the skull. In Case 1, the point of entry could be seen clearly in the films of the skull; at operation a round hole was discovered leading down to the dura mater covered with connective tissue and there could be no doubt concerning the route of penetration. It is noteworthy incidentally that this minute orifice remained clearly demonstrable. This may be related to the fact that in this case the foreign body remained almost stationary. One explanation is that the initial driving force would cease to be operative once the head of the needle no longer projected outside the external table, so that this extremity would continue to be gripped for some time by bone. Later on, connective tissue would be formed as a local reaction and continue to prevent further incursion.

The late onset of symptoms in both patients is of considerable interest. In particular, the appearance of epilepsy with generalized fits after an interval of 18 years is difficult to explain and the case presents another example of the little understood relationship between local lesions and paroxysmal cerebral discharges. The electroencephalographic changes were minimal and certainly did not point to a state of marked focal electrochemical instability. During the short postoperative period of 5 months, there have been no further attacks with the same medication as before.

In Case 2, circulatory changes with increasing age may have been a contributory factor which together with the local gliosis eventually resulted in the appearance of symptoms.
Late neurological disturbances caused by the presence of a foreign body are generally encountered only when there is scar tissue, formation of abscess, or other inflammatory reaction of which there was no evidence in this case. Fisher and associates produced experimental evidence that steel wire is well tolerated in the brain with only a minimal reaction of tissue in the immediate vicinity. The clinical observations above lend support to this work and in practice it is known that inflammatory changes in relation to foreign bodies are seen more commonly from bone fragments than from metal.

Whether operation for removal of the needle was in fact indicated is a moot point. At any rate, the position of one extremity immediately under the dura mater rendered extraction easy and non-traumatic and it was considered to be worth while.

SUMMARY

Two cases are presented in which sewing needles were discovered in the brain. In one, generalized epilepsy developed after 18 years; the needle was removed. In the other a visual field defect was discovered.

Explanations are offered for the persistence of the orifice of entry and the fixation of the foreign body in relation to it.

REFERENCES