DESCRIPTION OF SPECIMEN

The tumour (Fig. 1 on Plate) measured 21 cm. by 13.5 cm., and weighed 2,850 grams. Large varicose veins, some thrombosed, coursed over its surface. This was bossed, the mass being composed of several lobules of varying size and shape, held together by a loose connective tissue containing blood vessels, and, here and there, small collections of bright yellow fat. Each lobule possessed a distinct fibrous capsule which apparently had kept the local invasive properties of the tumour well under control, as there was no direct infiltration of any of the organs—left kidney, spleen, pancreas, or stomach—with which it was in intimate contact. The tumour was of tough, firm consistence, and yellowish-white in colour, the cut surface showing distinct fasciculation. No areas of degenerative softening or of haemorrhage were seen. The coeliac, splenic, and aortic glands contained small deposits of tumour growth.

Microscopical sections prepared from various parts of the tumour showed similar appearances—namely, a structure made up of interlacing bundles of fusiform cells with tapering ends and separated from each other by a fairly abundant intercellular material in which fibrils were present (Fig. 2 on Plate). The nuclei varied in size, shape, and depth of staining, most being large, almost filling the entire cell, elongated, and hyperchromatic. Many of the paler nuclei were vesicular. Mitotic figures were scanty. The somewhat numerous blood vessels took the form of endothelial-lined channels or mere spaces between the bundles of cells. The histology of the growth in the liver, lungs, and lymphatic glands was similar to that of the parent suprarenal growth. Sections of the left kidney and spleen did not show any invasion by tumour cells.

CONCLUSION

A fibrosarcoma of the left suprarenal gland is described, having arisen probably in the supporting connective tissue of the organ.

I wish to thank Mr. F. K. Smith for the use of the clinical notes and Professor Shennan for permission to publish the case. I am indebted to Mr. W. Nelson and Mr. W. Carnie for the photographs.

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TREATMENT OF COMPOUND FRACTURES OF THE TIBIA

BY

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(With Special Plate)

The complications of compound fractures of the tibia are so serious and crippling that any treatment that can reduce these to a minimum seems worthy of record. The following treatment has been adopted in twenty cases, and although the number is small the unusual success of the method may perhaps justify its publication as a preliminary to a more extensive series. The conception of the method developed as the result of examining the reasons why some compound fractures present the familiar and insuperable sequelae which have too frequently exhausted life or limb. These are due to two factors—infection and inaccurate mechanical reduction. No matter how one deals with the infection—and the methods are many—it would appear impossible to guarantee absolute and complete freedom from sepsis in every case. With regard to the position of the fragments one is struck by the fact that, too frequently, gaps and malalignment

do occur even in the most careful hands. The best of modern methods—axis traction by the Kirschner wire—has done much to minimize malposition. Its application is easy, but its maintenance is a matter of skill, patience, and minor adjustment.

METHOD

The present method is directed against the infection and eliminates the malposition. The bones are in apposition from the onset; they remain so; there are no readjustments; there are no gaps for stubborn new bone to span. There is no strain on muscles or ligaments which axis traction by every pound of its weight must unceasingly exert; there is complete rest to the fragments, and the patient is not tethered to his bed for a couple of months. In addition, there has been adequate room for cleansing the recesses of the wound, but should sepsis unfortunately occur there is little fear of non-union, and there is no fear that future open reduction or bone grafting will be necessary to overcome an original poor position. Lastly, the patient is usually upon a wheel-chair within a week, and out of hospital or nursing home within two to three weeks.

With execution as urgent as in perforated peptic ulcers the patient is taken to the operating theatre and anaesthetized, and the limb is iodined from mid-thigh to toes. The wound edge is closely excised with an eye to subsequent easy suture, and is extended up and down the leg so that an incision of not more than 5 inches in length is made with its centre over the seat of the fracture. The incision goes straight down to, but not through, the periosteum. Careful débridement is now effected, and the entire area liberally washed with flavine. The incision is continued in the connective tissues immediately above the periosteum around the subcutaneous surface of the tibia, and is extended just over the anterior and postero-internal borders, so that 1 inch of bone is "cleared" on either side of the fracture. The periosteum is not reflected. Lane's forceps are applied to the fragments in such a way that their teeth just grip these borders (see Special Plate, Fig. 1). An assistant pulls on the foot to secure the necessary amount of extension. This manoeuvre is performed with as little manipulation as possible, and during its execution care is taken once more to cleanse the bony ends with flavine before they are finally apposed. A special bone clamp¹ is applied to the already "cleared" fragments as in the diagram, so that it does not disturb the lateral vascular surface of the tibia. Before screwing the instrument "home" the assistant pushes the foot firmly towards the knee in order to press the two fragments hard against each other, thus ensuring that their corresponding serrations accurately interlock. The clamp is fixed (Fig. 2), the Lane's forceps removed, and an artificially rigid tibial shaft thus produced. A sterile gauze roll 5 inches wide is wound round the leg at the site of the fracture above and below the clamp, so that the wound is completely enclosed. The assistant now sits with his flexed elbows on the operating table, one flat hand under the knee and one under the heel. The rest of the limb, from toes to mid-thigh, is invested in a skin-tight plaster.* Where the operator has had no experience of this direct application one layer only of gauze is advised. A firm plaster is applied in adequate thickness up and down the limb, leaving the bone clamp projecting through its substance (Fig. 3). A window is now cut through plaster and gauze around the clamp (Fig. 4). It is of sufficient size adequately to expose the wound. The plaster is allowed to dry and the bone clamp removed. In practice, by the time this fenestration is complete the plaster is usually set and there need be no waiting. Care should, however, be taken not to release the clamp until the plaster is quite firm. The wound is now sutured, leaving a small gap at the lower end for drainage, but without incorporating a tube.

* Professor Eyre of Guy's Hospital has very kindly shown that plaster can be sterilized by simple means without losing its hardness. The use of this plaster in a sterile bowl and water ensures absolute freedom from contamination and avoids loss of time in changing gloves, etc., for suture of the wound after cutting the window and removing the bone clamp. Sterile plaster can be obtained from Messrs. John Bell and Croyden.

Dressings and a bandage around the plaster complete the operation. Antitetanic and anti-gas-gangrene serum are given as a routine. In this manner there is attained an almost perfect apposition of fragments by a relatively simple means and without the inclusion of any foreign material. A successful result depends on the following details:

1. An adequate, but not too generous, excision of the lacerated edge. Removal of wide ellipses of healthy skin is to be avoided, or there will be difficulty in suturing the wound at the end of the operation.

2. Pushing the fragments closely together before the clamp is screwed "home."

3. Using a skin-tight plaster or only one layer of gauze. In a loose plaster the fragments tend to slip out of place. There need be no fear of undue swelling or compression of the limb vessels, for the thickness of the gauze around the clamp, and the presence of the window, provide ample accommodation.

4. Seeing that the foot is only supported under the heel by the flat hand of the assistant. Dorsiflexion above the angle thus produced has a tendency to displace the lower tibial fragment backwards when the bone clamp is removed.

5. Ensuring that the plaster is both thick and dry enough before the clamp is removed.

FURTHER TREATMENT

The plaster is not removed for six to eight weeks, depending on the age of the patient. Another smaller one is then applied from toes to just below the knee, and a Böhler "boot"² incorporated. The patient can walk about in this iron for a few more weeks until the union is firm. In all of the series treated in this way the patients walked unaided and unsplinted in three months. In the most successful case the patient, a boy of 19, walked at the end of six weeks without stick or splint. At the end of four weeks he had thrown away the bivalve plaster which had been applied with a view to massage, and fortunately had come to no harm. Increasing experience shows that it is better to err on the safe side and leave the plaster on for longer rather than shorter periods, especially as the ambulatory Böhler boot is so comfortable and satisfactory.

The method is only advised for transverse or oblique fractures. The bone clamp, unfortunately, cannot secure sufficient stability in comminuted fractures. In such cases wire extension through the malleoli or os calcis is used, the wound is well washed, and the comminuted fragments, gently pushed into line.

DISCUSSION

There is no doubt that the one strong objection to this line of treatment is the deliberate laying open of a potentially infected wound and of the manipulation of fragments into line. This criticism will be dealt with.

1. With regard to the reduction of wound sepsis it is difficult to find out which is the best method. On the one hand certain experienced war surgeons maintain that constant wound irrigation saved numerous limbs. They are supported by Foster,³ whose continuous "Dakinization" of 304 consecutive compound fractures ward off sepsis in every case. On the other hand, Winnett Orr⁴ and an increasing number of modern surgeons condemn all forms of irrigation, and urge that successful healing will more readily take place if the wound is not inspected for at least six weeks. Such diametrically opposed treatments cannot both be the important factor in reducing sepsis. What is, however, strikingly advocated by both these schools, and indeed by unanimous opinion, is immediate and adequate débridement, followed by complete and absolute immobilization of the limb. The present technique ensures an adequate wound toilet, and provides for complete and absolute rest better than any axis traction or continued tension. Furthermore, the obliteration of gaps, dead spaces, and infected blood clot greatly reduces the bacterial foothold.

2. With regard to the bony union in compound fractures of the lower limb, more than in any other type, it is imperative to have the bony surfaces in as solid a contact as possible. The superiority of this method cannot be denied.

3. With regard to the criticism concerning open manipulation, superficially it would seem that first surgical principles are recklessly disregarded. Is this really so? The treatment of any laceration, by first principles, necessitates the complete excision of all dead material by cutting into healthy tissues immediately surrounding it. The present method carries this principle to excess, and where there is much dead tissue and dirt the débridement—the importance of which has been emphasized by both the irrigation and the non-irrigation schools—can be the more effectively performed. Indeed, in this short series of cases it has always been surprising how much dead tissue, and sometimes dirt, can shelter behind a tiny skin wound. In this method great care is taken of the bones. The main extension is by the assistant at the foot. There is no levering of fragments with elevators or bone spikes, no stripping up of periosteum, or gross manœuvring of any kind. The assistant at the foot simply does what the Kirschner wire would do; the Lane's forceps guide the fragments into place.

No amount of argument or speculation can decide whether this method and its reasoning is right or not. The cold candour of a long series of cases alone will decide. The severity and frequency of the complications of compound fractures indicate that the best method has not yet been found. The success of the present procedure appears to warrant its further application.

My thanks are due to the surgeons of the West London Hospital and the surgeons of Guy's Hospital for permission to use this method during the years 1929-31 and 1931-3.

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LUNG ABSCESS FOLLOWING TONSILLECTOMY

BY

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SHANGHAI

(With Special Plate)

Lung abscess is a subject more adequately dealt with in American than in British surgical textbooks, and references are more frequent in the American journals. This may be because the disease is reputed to be much commoner in America than in England, and is said to follow one in every 2,500 tonsil operations.¹ Although tonsillectomy is probably the commonest aetiological factor in lung suppuration, yet some British textbooks do not even mention it in this connexion. Moreover, there is one well-known work which advises the use of an exploring needle for localization. This dangerous and unnecessary practice is almost universally condemned.²

CASE RECORD

The following is an account of a case which we have recently observed.

Miss M., a nursing sister, had a tonsillectomy performed by one of our colleagues on May 17th, 1933. The anaesthetic (ether) was administered by a motor-driven apparatus through

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FIG. 2.—Shows bone clamp in position, Lane's forceps having been removed.

FIG. 4.—Shows window cut in plaster and bone clamp in position, ready to be removed.

FIG. 1.—Shows Lane's forceps in position and special bone clamp before application.

FIG. 3.—Shows bone clamp projecting through plaster.