
This book is a record of the use of radical surgery with local as well as general chemotherapy for tuberculosis of the spine by a man whose experience in that field can be equalled by few. He gives the results of 1,007 spinal lesions so treated among twice that number of orthopaedic tuberculous patients operated upon in the seven years 1949-56.

Dr Kastert tells how, in 1949, he saw the opportunity of draining and eradicating foci of disease as Erlacher had advocated in 1921, but with greater safety; having, however, limited amounts of streptomycin at that time, Kastert sought to concentrate it where it was most needed instead of diluting it throughout the blood and tissue fluids of the whole body: he drained abscesses, excised their linings, curetted bone lesions; and through rubber catheters left in position he instilled daily, for six weeks, streptomycin and later I.N.A.H. Intramuscular and oral chemotherapy followed for a further three months. During the six weeks' instillation the lesion received concentrations of antibiotics 2,000–20,000 times that commonly obtainable in the blood.

He considers that no case is too early for operation if complications are to be prevented and the disease shortened; and that any symptoms or signs of active disease demand operation in any patient under seventy who is not moribund, meningitic or grossly phthisical, or otherwise presents an impossible surgical risk.

Middle and lower cervical vertebrae are attacked through an antero-lateral horizontal incision going in between the great vessels and the thyroid and larynx or trachea. Costotransversectomy is done from one or both sides according to need. If there are two lesions, they may be operated upon both at once or the more extensive may be taken first. The lumbar bodies are approached after transversectomy. Whereas in the thoracic region bilateral paravertebral abscesses often communicate in front of the spine, in the lumbar region they rarely do so and bilateral approach is even more frequently necessary. A “gravitational” abscess may be exposed and cleared from the groin upwards extraperitoneally. The transperitoneal approach is used for lumbo-sacral disease. The catheter is instilled out as far as possible through muscle to give a valvular track after removal. One sealed catheter into which the injections are subsequently made by needle is used; a second catheter may be used for drainage if there has been a large abscess; the wounds are otherwise closed completely.

Free use is made of tomography before operation and of radiography, with curettes or other guides in position, during operation for the location of every small cavity. Bone chips to pack curetted cavities do not seem to have been used.

The fully developed scheme of chemotherapy now begins with a few weeks of Tibione with P.A.S. 6 grammes and I.N.A.H. 5–10 milligrams for each kilogram of body weight, and then streptomycin ½–1 gramme daily for five to ten days before operation. At operation streptomycin 1–2 grammes and I.N.A.H. 50–100 milligrams are left in the wound. After operation streptomycin ½ gramme intramuscularly is given for four and a half months; and for the first two weeks ½ gramme, and the next four weeks ½ gramme, is instilled. For this six weeks 80 milligrams I.N.A.H. is also instilled daily. At the end of the instillation period Tibione is again given with P.A.S. 6 grammes and I.N.A.H. 5–10 milligrams/kilogram daily with the ½ gramme intramuscular streptomycin already mentioned for three months. Mercurichromine 2 per cent is used as a non-irritant skin steriliser during the six weeks that the catheters remain in position. Plaster bed immobilisation was used after operation for four to eleven months (average six months).

The total mortality in the few weeks after operation was 15/1,007; but, in the last 236, only one patient was lost. Three died of meningitis.

Complications included: pleural effusion in seventy-two, usually controlled easily; meningitis in ten; and fistulas or soft-tissue abscesses in thirty-six. These last, sometimes due to inadequate clearance of the focus, demanded a second operation.

Healing was defined as symptomless movement, with normal temperature, E.S.R. and blood picture and radiological fibrous or bony fusion without evidence of any residual focus or abscess. One would have been grateful for a clear definition of the radiological evidence of fibrous "bloch" and the relative proportions of fibrous and bony fusions. No less than 96-2 per cent of the 1,007 patients were considered healed. Nearly 70 per cent of these were said to have reached more than 50 per cent of their normal working capacity.

Of 775 patients in whom the duration of symptoms before operation has been recorded, 293 had suffered up to twelve months, a further 284 from one to four years and a further 202 between four and over twenty years. This is an impressive scatter. Various ages also were well represented.
The book is well printed. There are very many well reproduced radiographs, though in some detail, such as the outline of a psoas abscess, has to be shown by superimposed white dots. This is a pity, as are such carelessness as the occasional reversal of films taken before and after operation or the insertion of prints upside down. It is a slim volume to cover all that could and should come from a study of such a massive series. Moreover, much space is taken by excursions into pathology or rather speculative immunology, not really relevant to the author’s métier. In consequence, many questions are left unanswered. Apart from the thirty-six sinuses of soft-tissue abscesses demanding further operation, were there no relapses? Some of the illustrations show results such as others have seen with or without operation and certainly without Dr Kastert’s special instillation technique. Many of the films show a result stated to be one of several years after operation: how soon in fact was this result obtained? Is this the first film in which it showed itself? We are not told. The difficulty in assessing the value of a method applied by one man to all his patients is that we are still left guessing, and having to reply from our own experience as to which would have done as well with less. Detailed analysis of the results is not given, even of the approximately forty “failures” other than the fifteen who died. What were their ages, lengths of history, or types of lesion? One would like to have similar information about the 962 “successes,” and the type of result with speed of fusion, fibrous or bony. There are graphs showing the general scatter of age, length of history, frequency of involvement of individual vertebrae and sex distribution, but there is nothing individual.

The reviewer favours early operation for many patients with Pott’s disease; the author’s record of the application of operation and instillation chemotherapy to all his patients may be too uncritical for those of us who do not wish to follow a rule of thumb but to do all that is necessary though not more than is required to produce the desired result. One would like to see the method tried first in cases with ramifying and sclerotic disease of some standing or in patients with considerable destruction where it may well be felt that some extra effort is required. The method obviously “works” and, though we may feel some evidence of uncritical enthusiasm, that should not blind us—as it so easily can—to the real value in selected circumstances.—F. Harwood Stevenson.


In the first section of his monograph Dr Tarlov discusses an experimental method of producing paraplegia in dogs. By means of an inflatable balloon inserted in the vertebral canal the spinal cord or cauda equina can be subjected to known pressure for a definite time. He found that “functional recovery after acute extradural compression of the cord depends upon the magnitude of the compressive force as well as its duration.” With large forces acting for longer than five minutes, recovery did not occur. With minimal force recovery can occur after much more prolonged compression, especially if the force is applied gradually by slow inflation of the balloon. His experiments showed that the nerve roots of the cauda equina are much more resistant to pressure than the cord itself. Very high compression forces applied to the cauda equina for many hours were followed by complete recovery from paralysis and anaesthesia. Histological examination of spinal cords subjected to pressure causing irreversible paraplegia showed gross vacuolation and distortion of the long tracts extending over several segments. From these examinations, from clinical observations and from a study of the action potentials recorded from the dorsum of the spinal cord after stimulating a dorsal root Dr Tarlov concludes that paraplegia from compression is due to mechanical distortion of the cord and not to ischaemia. These experiments are ingenious and the results most interesting. In general, they agree with the clinical and pathological findings in paraplegia from compression of the cord or cauda equina in man.

The second section is devoted to a clinical study of compression paraplegia in man, and emphasises the lack of accurate knowledge of the clinical manifestations of acute traumatic paraplegia. Little, if any, clinical evidence is produced to support Dr Tarlov’s contention that immediate laminectomy should be performed on all patients suffering from complete traumatic paraplegia with a demonstrable thecal block. This is contrary to the experience of many authorities.

The third section is devoted to the early management of acute paraplegia and is frankly disappointing. The treatment advocated for fractures of the spine associated with cord damage is not in accord with modern practice. Most authorities would condemn as highly dangerous closed reduction of dorso-lumbar fracture-dislocations by hyperextension, and all paraplegia centres have abandoned plaster fixation. Again, Dr Tarlov states that, in unstable dislocations of the cervical

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