SURGICAL TREATMENT OF SPINE TUBERCULOSIS THROUGH ANTERIOR APPROACH

Z. B. Milinkovic, M. S. Filipovic, M. Milenkovic

UniversitySpecialOrthopaedic Hospital Banjica -Belgrade

From 1978 to 1988, 106 patients with spine tuberculosis were operated through anterior approach. Mean age of the patients was 39, with 38% of patients in the age group between 51-60. Preoperative neurological deficit was present in 22% of patients. TBC process was located in cervical (2%), thoracic (67%), thoracolumbal (15%), lumbal (15%) and lumbosacral (2%), thoracic (67%), thoracolumbal (15%), lumbal (15%) and lumbosacral region (1%). In 40% of cases kyphosis ranged between 21-40% and in 14% between 41-60%. Cold abscess was found in 52% of cases. Surgery consisted of wide anterior approach an excision of the focus and cold absces, decompresion of spine canal with removal of bone sequester and solid interbody fusion only with autogenous graft (rib autograft 40%, iliac crest 34%, vascularized pedicle rib 16%, fibula 10%).

The authors believe that anterior approach offers several advantages: wide exposure of the lession, excellent possibilities for decompresion and adequate and solid body fusion by autografts. With this approach and tuberculostatics the duration of treatment is significantly shortened.

***Key Words** : Spine tuberculosis, anterior approach, surgical treatment.*

Tuberculosis of spine has been recorded in ancient times and its first written description was given by Hippocrates. Pott described it as a kyphotic deformity of the spine associated with paraplegia so that since 1779 it has been known as Pott's disease. In spite of the fact that, as an entity, it has been recognized for such a long time, until recently, its treatment has not been clearly specified. There are still arguments about the value of its conservative treatment with rest and immobilization versus surgery. Now, it became clear that spine tuberculosis can be well treated with antituberculous chemotherapy and recumbency or plaster cast immobilization. This particularly refers to the treatment of children. In adult patients and those with neurological deficit this treatment is not sufficient if compared to radical surgical treatment.

Since Menard, 1894, anterolateral approach allows direct approach to the lesion and adequate decompresion. According to Hodgson, anterior approach proved its efficiency in the management of spine tuberculosis. This approach offers good exposure of the spine and a possibility for adequate decompression and fusion of the affected part. Today this procedure is known as a Hong Kong operation.

Thorough studies done by Research Council in different countries proved this operation to be superior in the treatment of this disease in adults. Choice between long-term chemotherapy alone or chemotherapy associated with Hong Kong operation is still present although it is obvious that the later one provides better results. Experience with anterior approach in the treatment of spinal deformities in our hospital (Klisic, 1955) helped us to addopt the policy of radical surgical treatment of spine tuberculosis in adults. Since 1978 this procedure has become the procedure of choice in all cases of doubtfull diagnosis in adults and in cases with evident bone destruction associated with incipient or established neurological deficit.

The aim of this analysis was to follow up all the patients operated from 1979 to 1988.

Z. B. Milinkovic, M. S. Filipovic, M. Milenkovic
University Special Orthopaedic Hospital Banjica - Belgrade

MATERIAL AND METHODS :

From 1979 to 1988. 106 cases of spine tuberculosis were operated by the same team and through anterior approach in the Special Orthopaedic Hospital "Banjica", University of Belgrade.

In this group there were no children and the average age of the patients was 39 years. Thirty percents of all cases belonged to the age group 51-60 years. All patients were followed up through clinical examinations and available medical documentation. Follow up ranged between 2 and 12 years at the time of analysis (average 5.6 years). All cases were operated by anterior approach which depended on the level of lession (thoraco-phreno laparotomy except 2 cases where operation has been done in the cervical region). Operation consisted of: wide anterior approach and wide exposure of the diseased area, debridgement of bone and dissection of cold abscess sac with decompresions of canals if ne-

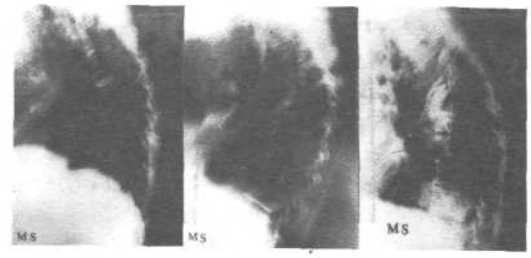

Fig. 1. : M.S., female, 53 years old, vascular pedicular rib graft, good and fast solid union after 16 weeks postop. x-ray 3 1/2 years after operation.

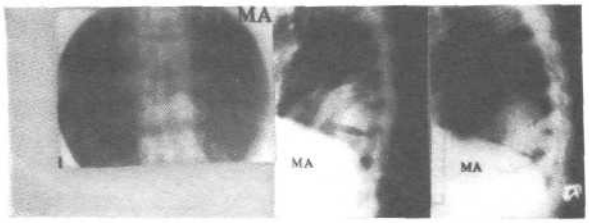

Fig. 2. : M.A., female, 42 years old, palisade rib grafting, 4 years follow up, solid fusion.

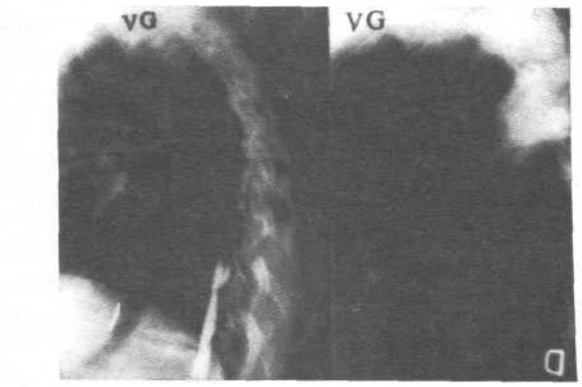

Fig. 3.: V.G., female, 62 years old, vascular pedicular rib graft, solid fusion on follow up x-rays.

cessary and spine fusion with autografts. Female to male ratio was 2.5 : 1.

In 40% of cases gibus kyphosis between 12-40° and in 14% over 41° (between 41 and 60° measured by Cobb's method).

In most of the cases with lumbal localization colaps of the physiological curves was noticed as well inversion of the lordosis to decreased lordosis or kyphosis in the lumbal region. In all cases primary symphom was back pain with radiotion of the pain twords hip or sciatica in 46%.

Regional investigation revealed cold abscess in 52% of cases. 32% of cases required additional x-ray and CT examinations due to unclear differential diagnosis (tuberculosis or tumoral process). Neurological lesion was found in 22% of cases (partial in 18% and complete in 4% of patients).

All patients were preoperatively treated by tuberculostatics: short-term (4-10 days) 66% and long-term (10-21 days) 44%. All cases with neurological deficit were submitted to a short-term antituberculous therapy-

Rib grafts were used in 40%, iliac crest in 34%, vascularized pedicular rib graft in 16% and fibular graft in 10% of casse. In prevention of graft colapse surgical policy was to extend grafting from end plate to end plate. This was done with adequate calculation of the graft length (better longer than a too short graft). If necessary, grafts can be additionally supported by fibula, During the operation all possible corrections of the existing kyphosis of the gibus are done by manual meneuver.

DISCUSSION

All cases were submitted to major surgery in order to obtain exact diagnosis, early eradication of the disease, decrease of cord compresion and to obtain early and adequate fusion of the spine. In that maner we tried to prevent secondary kyphosis or to correct the existing one. Most of the cases were not acurately diagnosed and the diagnosis varied from infection to a tumoral process. From that point of view, exploratory and radical surgery definitely have ceratin advantges since they permit direct visualisation and biopsy of the lesion which are necessary for the confirmation of the diagnosis.

Bacterial examination of the pus determines the type of organism and its sensitivity to antibiotics. Our policy is that after all radical surgeries three tuberculostatics are given to all patients, at least 6 months after surgery. The main object of concern in the postoperative course should be following up of sedimentation rate. Constant decrease is a good sign which is mandatory for determination of the duration of drug therapy and immobilization.

We believ that autogneous, especially live grafts, would offer belter possibilities for faster healing of the lesion. So, pedicular rib grafts showed advantages as visible and alive grafts with good cell resistance and

strong biomechanics which do not go under "creeping cell subsitution" and unite faster as viable strong grafts. None of the analysed cases had fractures in spite of a rather large number of fibular grafts in this series. All cases with neurological deficit recovered postoperatively. Only 2 cases with complete deficit recovered only partially.

We had no complications except 3 cases of secondary healing of the skin and one prolonged haemotorax.

Union of the grafts varied form 4 to 12 months (excepts fibular grafts where postoperative immobilization with plaster jackets varied from 10 to 16 months).

CONCLUSION :

This analysis proves that radical surgery with anterior approach offers several advantages of wide and complete eradication of the lesion with adequate and solid fusion.

In our experience with this approach and tuberculostatic therapy we have not had any recurrence of the disease. As a procedure it requires experienced surgical team.

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