Surgery for Progressive Pott's Paraplegia (Tuberculous Paraplegia)

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Summary

This is a study of 20 patients who had surgical intervention for Pott's paraplegia at the Hacettepe University Neurosurgery Department, Ankara. All patients were admitted with progressive paraparesis. Eleven patients had vertebrectomies, 5 laminectomies and in 4 patients costo-transversectomies were performed. The follow-up period ranged from 1 to 10 years. Thirteen patients were found to be normal at follow-up examinations (65%). In 4 patients there was some improvement in their neurological status, and the others had no improvement.

Key words: Spinal tuberculosis; Paraplegia; Surgical treatment.

Despite the availability of modern chemotherapeutic agents and health care programmes throughout the world, tuberculosis is still encountered as an important disease causing paraplegia, especially in third world nations. In developed countries only sporadic cases are seen (Wright, 1982).

Modern chemotherapy has greatly changed the treatment of Pott's paraplegia (Griffiths, 1979; Medical Research Council, 1973, 1976, 1978; Pattison, 1986; Wright, 1982). Surgery nowadays is only advised for progressive paraplegia (Alexander, 1946; Dott, 1942; Kemp 1976; Kirkaldy-Willia, 1965; Langenskiöld, 1967; Martini, 1979; Mathai, 1967).

This report deals with 20 patients who had surgical intervention for Pott's paraplegia. The aim of this study is to present the cases and to search for the success of this therapy. We should mention that all our patients received full chemotherapy beside surgical intervention.

Materials and methods

The files, neuroradiological examinations, operation notes and pathology slides of the patients have been reviewed.

Results

There were 11 female patients (55%) and 9 males (45%). The mean age was 39.1 years (Table I). All of the patients were admitted to our clinic because of progressive paraplegia (Table II). The duration of symptoms was found to be between 1 day and 3 months. In 65% of the cases the initial complaints were severe paraparesis and in 30% moderate paraparesis. There was also severe pain in 85% of the patients. Fifteen per cent of the patients were under medical control when admitted for surgery.

Ten per cent of the cases had cervical disease, 70% thoracic, and 20% had disease in the lumbar area.

The neuroradiological examinations are summarised in Table IV. Vertebral body compression fracture was the most prominent finding. Evidence of an abscess was found in 11 cases. Myelography was performed in 7 patients and CT was

Table I Age distribution

Age group	No. of cases
Below 20	2
21-30	2
31-40	4
41-50	7
51-60	1
Above 60	3

Table II Initial complaints

Complaints	No. of cases
Pain (Back or radicular)	17
Leg weakness	20
Inability to walk	6
Incontinence	2
Gibbus	3

Table III Preoperative neurological status

Grade	No. of cases
1	6
2a	1
2b	1
3	3
4	7
5	2

performed on 6. In 5 patients laminectomies were performed, in 11 cases vertebrectomies, and in 4 cases costo-transversectomies. During the preparation of this manuscript 1 patient in this group who had had a costo-transversectomy previously, was readmitted with severe pain:— in the CT examinations pus had recollectd and was removed with CT guided needle aspiration (Figure). The patient was symptomless after the procedure.

The patients were followed-up for between 1 and 10 years. The average follow-up was 3 years.

The results of therapy are shown in Table V showing the findings at the last

Table IV Neuroradiological investigations

Investigation	No. of cases	Pathology positive
X-ray	20	20
compression	14	
abscess	11	
Myelography	7	7
total block	3	
partial block	4	
CT	6	6

Figure Needle drainage of tuberculous abscess.

Table V Postoperative neurological status

Grade	No. of cases
0	13
1	1
2a	—
2b	3
3	—
4	2
5	1

neurological examination. Sixty five per cent were found to be neurologically normal, and in full employment. All of our patients received full chemotherapy (INH plus Rifamycine, plus PAS or ETB) under the control of our Internal Medicine Department.

Discussion

Pott's Paraplegia, a clinical syndrome which was first described by Percival Pott in the eighteenth century (Ohry-Kessoy 1986), is a serious complication of tuberculous spondylitis. Because the infection is a chronic one and many factors such as poor nutrition, and poor life facilities may play a role in the onset and progression of the disease, the care of such patients requires enough time and high financial incomes. In Turkey a country-wide antituberculous-fight programme was organised in the 1930's and this has reduced both the active disease and complications. This organisation is an important branch of the Ministry of Health, and works separately (Sabar, 1950). As seen from the present data our patients were mostly in the middle age group.

In Pott's paraplegia the aim of surgery is to decompress the spinal cord either by removal of bony fragments or by aspiration of pus compressing the spinal cord. Accurate histopathological and microbiological diagnosis can be obtained from the materials obtained during surgery, and bony fusions can be performed when needed then.

In the pre-operative period two important questions must be answered. Is the spinal cord compression due to vertebral compression and dislocation? or/and is there any evidence of an extradural abscess? These questions can be answered by careful X-ray studies. Nowadays CT gives valuable information about the bony et cetera compressing the cord and the extent of any epidural abscess. In the present report in 70% of the cases vertebral body collapse and in more than half an epidural abscess was found.

In the present study the pre- and post-operative neurological states of the patients are considered according to the criteria of Pattison (1986). As seen from the tables, 40% of the cases had incomplete motor loss or only had pyramidal signs. But paraplegia of acute onset was found in these cases and they were immediately decompressed. Surgery was mostly effective in these patients. In the literature this point is very well clarified (Kemp, 1976; Martini, 1979; Wright, 1982). An additional 12 patients had severe motor loss on admission. In control examinations (last examinations) 65% of the cases were found to be normal and in 4 there was some improvement in the neurological state.

One patient remained in Grade 5, being admitted to our clinic 47 days after the onset of paraplegia, and surgical intervention did not benefit this patient. Another patient was admitted after 18 hours and his grade changed from 5 to 0-7 years after surgery.

In the post-operative period the follow-up is very important. All of our patients received full chemotherapy and their spine was checked from the point of stabilisation or collection of pus. In only 1 patient recollection of pus was encountered and it was aspirated by a needle under control of CT machine. We feel that this form of treatment may be effective for pus collections, or to help with the diagnosis (Schumacher, 1988).

Although standard laminectomy is found to be inadequate for decompressing the cord especially for anteriorly located pathologies, it is a method to decompress the cord if there is only a tuberculous abscess (Wright, 1982). Five patients had laminectomy, these were performed before 1986, before the availability of spinal CT. Two had lumbar region disease.

Gibbus formation is an important factor in deciding on costo-transversectomy (Alexander, 1946; Dott, 1942); it is very effective especially in the lower thoracic region. Patients are mobilised more quickly after this procedure.

Although vertebrectomy by thoracotomy is a more invasive way of intervention, by this way it is possible to remove nearly all of the affected bony material and pus and it is also possible to perform fusion with rib grafts. This is our choice of treatment for pathology in the mid-thoracic region. We prefer costo-transversectomy for lower thoracic lesions.

In conclusion we state that surgery must be performed in patients who have progressive paraplegia especially in the first hours of the onset of the disease.

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