

Spine Surgery in Geriatric Patients

S Nair, C S Yu, K S Ngian, H P Wong, Y P Low

ABSTRACT

Aim: Many elderly patients are crippled by degenerative spine conditions. Operative treatment is often not offered due to fear of complications and consideration of life span. The objective of this study was to look at the diagnosis, surgical results and post-operative complications of elderly patients who underwent spinal surgery.

Methods: A cohort of 44 patients, 65 years and older, who had surgery in Tan Tock Seng Hospital from January 1990 - August 1995 were reviewed. Twenty-five of them had spinal stenosis, 11 had tumour and 9 had traumatic fracture/dislocation/subluxation. There were 3 patients each with disc herniation, infection and spondylolisthesis. Nine patients had more than one diagnosis. All patients were investigated post-operatively. The data was entered into a computer-coded protocol. The diagnosis was determined intraoperatively. Type of surgery, co-morbid conditions and results were looked into. Patient's opinion on relief symptoms was graded on a 5-point scale. Functional improvement was tabulated as the patient's ambulatory status.

Results: The analysis of results was divided into two groups, patients with tumour and those without tumour. Twenty-seven of the 33 patients without tumour were alive at follow-up. Twenty-six of these patients had improvement of symptoms and 18 of 27 had improved functional status post-operatively. In the group with tumours, 2 had worsening symptoms and 3 had decreased function.

Conclusion: Surgical intervention should be a treatment option in elderly patients with spinal disease.

Keywords: spine, geriatric, surgery, complications of spine surgery, elderly

INTRODUCTION

Elderly patients are often disabled by disorders of the spine. Treatment for the degenerative spine is most commonly non-surgical, consisting of analgesia, physiotherapy and a large dose of reassurance. Although surgical treatment is often indicated to improve the quality of life⁽¹⁾, there is hesitation to offer such intervention in elderly patients because of the higher risk of complications in this age group. We reviewed our experience with spine surgery in elderly patients in order to assess the relative risks and benefits of this approach.

MATERIALS AND METHODS

We performed a retrospective study of 44 consecutive patients (aged 65 years and older) who underwent spine operations from January 1990 to August 1995. The follow-up period ranged from 2 to 49 months, with 25 patients followed-up for at least 12 months.

Data was obtained from the patients' medical records and interviews with the patients or their relatives (if the patient was deceased). The parameters studied included the following:

1. age and sex distribution
2. diagnosis and type of surgery
3. post-surgical complications
4. co-morbid conditions
5. symptomatic and functional improvement

Of the 44 patients, 25 (56%) were females and 19 (44%) were males. The majority were in the 65 to 70-year age-group (Fig 1).

The intra-operative diagnoses in these patients are shown in Fig 2. Nine patients had more than one diagnosis: 2 had stenosis and disc herniation; 2 had stenosis and spondylolisthesis; 1 had stenosis and trauma; 1 had stenosis and infection; 1 had stenosis and tumour; 1 had tumour and infection; and 1 patient had stenosis, spondylolisthesis and disc herniation.

Fig 3 shows the surgical procedures that were performed. The most common procedure was laminectomy, performed in 35 patients. Thirteen patients had more than one type of procedure within the same operation: 3 had corpectomy and fusion; 4 had laminectomy and discectomy; 3 had laminectomy, fusion and posterior instrumentation; 3 had laminectomy and fusion; 1 had laminectomy and foraminotomy; and 1 patient had laminectomy, discectomy and fusion.

Thirty of the 44 patients had pre-operative co-morbid conditions. The types and frequencies of the co-morbid conditions are shown in Fig 4. The most common of these were hypertension in 18 patients and diabetes mellitus in 11 patients.

RESULTS

For the purpose of analysis, the patients were divided into 2 groups - those with tumour and those without tumour.

Patients without tumour

There were 33 patients in this category. The male to

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Fig 1 - Age distribution

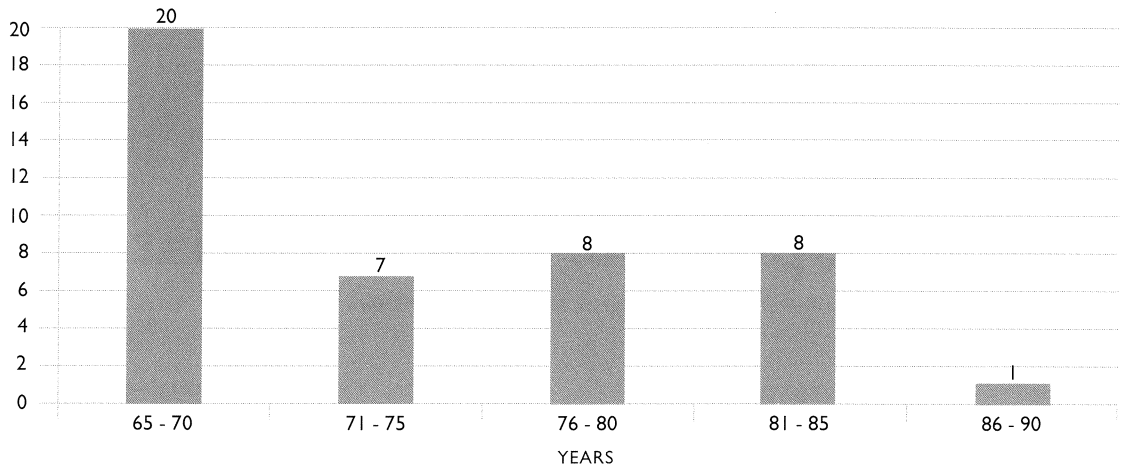


Fig 2 - Intra-operative diagnosis

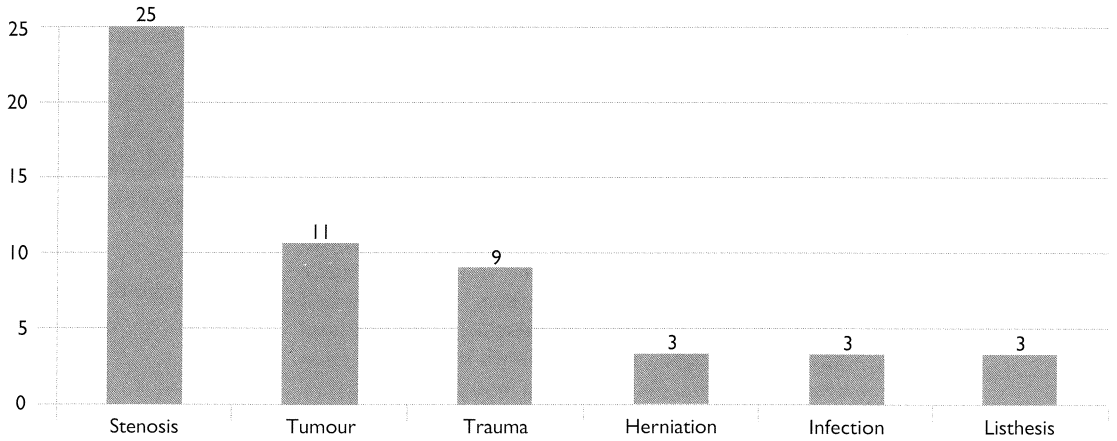


Fig 3 - Type of procedure

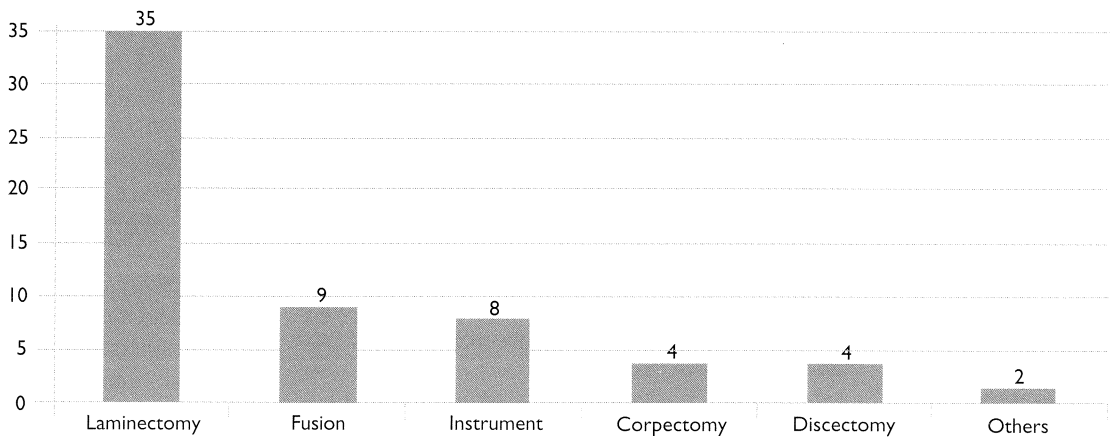


Fig 4 - Co-morbid conditions

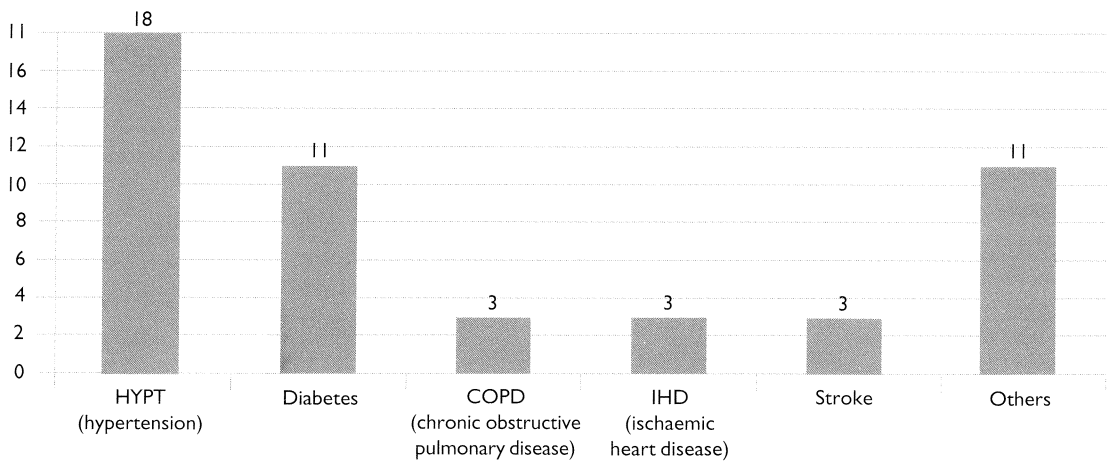
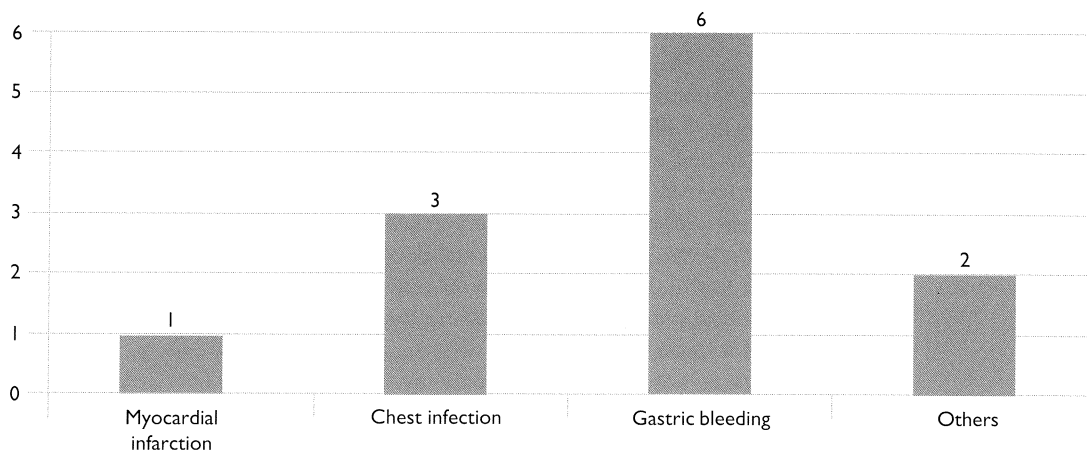


Fig 5 - Post-operative complications in patients without tumour



female ratio was 1:2. At the time of follow-up, 27 of the 33 patients were still alive. Two patients had died within a month of surgery. The causes of death in these 2 patients were bronchopneumonia and pulmonary embolism respectively. Eight patients developed 12 post-operative complications (Fig 5). Of these 8 patients, 7 had at least 1 pre-operative co-morbid condition. Hence, 7 out of the 14 patients with co-morbid conditions developed complications. On the other hand, only 1 out of the 19 patients without co-morbid conditions had complications.

The symptoms evaluated were neck/back pain, arm/leg pain, numbness and weakness. The symptoms were graded on a 5-point scale:

- 0 = never had the symptom
- 1 = symptom was worse after operation
- 2 = symptom was the same after operation
- 3 = some improvement after operation
- 4 = much improvement after operation
- 5 = the symptom has completely recovered post-operatively

For each patient, the symptom with the worst score was taken as the overall final result. Of the 27 patients who were still alive at follow-up, 6 had complete symptomatic recovery. Eighteen had much recovery, 2 had some recovery and 1 was the same post-operatively. No one was worse off post-operatively.

Functional assessment was carried out by charting a patient's pre- and post-operative ambulatory status as follows:

- 1 = bed-bound
- 2 = chair-bound
- 3 = home ambulator
- 4 = community ambulator

Of the 27 patients who were still alive at follow-up, 5 patients improved by 2 grades, 13 improved by 1 grade and 9 remained the same.

Hence, 24 of the 27 patients who were alive at follow-up had much improvement or complete symptomatic recovery. Functionally, 18 of the 27 patients improved by at least 1 grade.

Patients with tumour

In this category, the types and frequency of tumour encountered were:

- adenocarcinoma (unknown primary) in 4 patients
- prostatic cancer in 2 patients
- rectal cancer in 1 patient
- renal cell carcinoma in 1 patient
- breast cancer in 1 patient
- Non-Hodgkin's lymphoma in 1 patient
- liver cancer in 1 patient

The surgical procedure most commonly performed was laminectomy (8 out of 11 patients). Of the remaining patients, 2 had corpectomy and fusion with anterior instrumentation and the last patient had fusion and wiring.

At follow-up, 2 patients were still alive. One of them had survived 25 months and the other, 2 months post-operatively. The post-operative survival periods for the 9 patients who had died were as follows:

1 patient	24 weeks
2 patients	16 weeks
1 patient	12 weeks
2 patients	8 weeks
1 patient	2 weeks
1 patient	1 week

The average survival was 9.78 weeks (excluding the patients who were alive at follow-up). Post-operative assessment was carried out in the same manner as for patients without tumour. The evaluation for patients who had died was based upon documentation while the patient was still alive. Symptomatically, 2 patients had complete recovery. Two patients had much recovery, 3 patients had some recovery while 2 patients remained the same. Two were worse off post-operatively. Functionally, 2 patients improved by 1 grade, 3 became worse while 6 remained the same.

DISCUSSION

Patients without tumour generally did well following spinal surgery, with 26 of the 27 surviving patients showing at least some improvement in symptoms

post-operatively, and 18 of the 27 showing improvement functionally. Patients with tumour generally had much poorer results. Two of the 11 patients had worse symptoms and 3 of them deteriorated functionally post-operatively. The average survival was 9.78 weeks. These poor results are probably related to the use of laminectomy alone in the treatment of spinal cord compression due to vertebral metastases. In more recent years, the use of anterior decompression and spinal stabilisation will hopefully, lead to better results. The presence of co-morbid conditions did not lead to worse results after surgery. However, the incidence of post-operative complications was higher in these patients.

CONCLUSION

Elderly patients who undergo surgery for spinal disorders other than tumour can expect to have good

results. Old age alone is therefore not a contraindication for spinal surgery. However, the presence of co-morbid conditions such as diabetes and hypertension seem to increase the risk of post-operative complications.

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