Lumbar spinal stenosis

A retrospective study of 163 cases in southern Sweden

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I assessed the incidence of lumbar spinal stenosis as well as the frequency of severe neurological symptoms and signs based on patients seen in 2 orthopedic departments. The annual incidence in Malmö, 1982–1986, was 59 and in the period 1987–1991, 47 per million inhabitants. In Växjö, 1987–1991, the annual incidence was 45 per million. Severe neurological symptoms were few. Reduced EHL power and peroneal paresis were the most prevalent signs and were found in 13 and 12 percent, respectively, of all 163 patients. 1 patient had bladder dysfunction, 1 had impotence and 2 had a cauda equina syndrome.

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The incidence of lumbar spinal stenosis is not fully known. Verbiest (1980) found a ratio of 1 operated patient with spinal stenosis to 12 operated patients with disc herniation.

According to Nachemson (1991), the incidence of operations for disc herniations in Sweden has not changed since the mid-1950s; about 200 patients per million inhabitants are operated each year. This would mean about 17 patients per million inhabitants are operated on annually for spinal stenosis.

To determine the incidence of patients consulting an orthopedic department because of spinal stenosis, I analyzed all patients with this diagnosis in the 1980s and early 1990s at 2 orthopedic departments in southern Sweden.

A further aim of this retrospective investigation was to find the frequency of serious neurological symptoms and signs in spinal stenosis.

Patients and methods

Included in the study were all patients who consulted the Orthopedic Department in Malmö in the period 1982–1991 and the Orthopedic Department in Växjö in the period 1987–1991 and had a diagnosis of spinal stenosis.

Malmö, a typical industrial town, had 230,000 inhabitants and all patients from the area were referred to the hospital for further investigation and treatment of spinal stenosis.

The catchment area of the Orthopedic Department in Växjö comprises 170,000 inhabitants (70,000 in the town of Växjö). Växjö is a center of administration for the district, while the main occupations in the non-urban areas are in forestry and minor industries.

The diagnosis of spinal stenosis was established by myelography (n 32), CT (n 5), myelography + CT (n 99), MRI (n 18), MRI + myelography (n 2), MRI + CT (n 4) or myelography + CT + MRI (n 3). In total, 136 patients (83 percent) were examined with lumbar myelography.

On the myelogram, the dural sac was considered narrow when the dye column measured 11 mm or less anteroposteriorly. On CT or MRI, a midsagittal diameter of the dural sac of 11 mm or less was considered pathologic.

Excluded from the study were patients with impaired circulation in the legs and those in whom the AP diameter of the dural sac was more than 11 mm.

Results

The incidence of spinal stenosis was about the same, 50/year/million inhabitants, in the different periods and departments (Table 1).

In Malmö (1982–1991) the mean duration of symptoms was 20 (1–180) months, 72 patients (58 percent) had claudication, 43 (35 percent) radicular pain and 8 (7 percent) mixed symptoms. In Växjö, the mean duration of symptoms was 19 (2–120) months, 17 patients (42 percent) had claudication, 19 (47 percent) had radicular pain and 4 (11 percent) had mixed symptoms. Thus, in Malmö, the majority of patients

Table 1. Spinal stenosis. Number of patients, sex, mean age and incidence

Locality	Years	Mean population (thousands)	No.	M	F	Mean age	Annaul incidence per million
Malmö	1982–1986	230	68	37	31	66 (42–86)	59
Malmö	1987–1991	233	55	26	29	68 (46–86)	47
Växjö[a]	1987–1991	177	40	23	17	66 (50–85)	45
Malmö	1982–1991	231	123	63	60	67 (42–86)	53

[a]County of Kronoberg

had claudication, while in Växjö radicular pain was more frequent.

Reduced power of the extensor hallucis longus (EHL power) and peroneal paresis were the most prevalent signs. In Växjö, no serious symptoms were found and in Malmö, very few (Table 2).

Degenerative olisthesis was found in 42 patients (34 percent) in Malmö (1982–1991) and in 14 patients (35 percent) in Växjö. The rest of the patients had degeneration only. The levels at which the most marked stenosis occurred were L3–L4 and L4–L5.

In Malmö, 1982–1986, 44 patients underwent operation. During 1987–1991, 32 patients were operated on in Malmö and 32 in Växjö. Thus, in Malmö, over a 10-year period, about 8 patients were decompressed per year. In Växjö 1987–1991, about 7 patients were decompressed per year. This means that about 33 and 36 patients per million inhabitants per year were treated surgically in Malmö and Växjö, respectively.

Table 2. Severe neurological symptoms and signs in spinal stenosis (bilat. signs in brackets)

Locality period	Malmö 1982–1986	Malmö 1987–1991	Växjö[a] 1987–1991
No. of patients	68	55	40
Bladder dysfunction	0	1	0
Cauda equina syndrome	1	1	0
EHL power reduced	8 (1)	4 (1)	10 (3)
Impotence	1	0	0
Leg paresis	0	1	0
Peroneal paresis	7 (1)	10 (1)	2
Quadriceps paresis	1	1	0

[a]County of Kronoberg

Discussion

The real incidence of spinal stenosis is impossible to determine. Many patients with minor symptoms do not seek medical attention and the clinical diagnosis of spinal stenosis must be supplemented by some objective investigations. Moreover, the natural course of the disease varies (Johnsson et al. 1992). However, the incidence figures I found indicate to some extent the magnitude of the problem and the amount of medical care required by this patient group.

Patients with spinal stenosis are older and more liable to suffer from vascular diseases. In this investigation, patients with signs of vascular disease in their legs were excluded, because their symptoms are similar to those in spinal stenosis.

Dodge et al. (1988) described a material of 172 patients with verified spinal stenosis, of whom 9 also had vascular disease—a frequency of about 5 percent. Thus, the incidence of spinal stenosis in the present investigation might be 5 percent higher.

The signs and symptoms of spinal stenosis have been described recently by Jönsson and Strömqvist (1993) who, in a prospective study, found that the EHL power was reduced in 42 percent. In 100 consecutive patients with spinal stenosis, more serious signs and symptoms, such as cauda equina syndrome or peroneal paresis, were not found. In my series, EHL power was reduced in 10 percent and peroneal paresis was found in 14 percent of the patients. The difference is difficult to explain, but may have to do with the retrospective character of my study. Sanderson and Wood (1993) found an even lower frequency of reduced EHL power and peroneal paresis. However, their material included only 34 patients.

Bladder dysfunction and cauda equina syndrome were evidently not found in the 2 latter investigations. This is in accordance with my findings, but contrary to the results of Deen et al. (1994), who found bladder dysfunction in more than half of their patients with spinal stenosis. However, their patients were older, having a mean age of 70 years. Disturbed sexual function is uncommon in spinal stenosis; only a few cases have been published (Willen et al. 1989).

Surgery was performed at almost the same frequency in both orthopedic departments. More than 30 patients per million inhabitants per year were decompressed. The frequency of operative treatment was 50 percent higher than that found by Verbiest (1980).

It seems fair to conclude that the annual incidence of lumbar spinal stenosis in southern Sweden was about 50 cases per million inhabitants. The risk of severe neurological problems was low and very few patients were emergency cases.

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