

Myelopathy due to cervical spondylosis in Yaoundé: clinical features and treatment

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Abstract: Cervical spondylosis is a common condition of the spine. Spondylosis progresses with age. The most severe complication is myelopathy due to narrowing of the cervical canal. We conducted a cross-sectional descriptive study between January 1994 and November 2005 in the neurosurgery departments of the Central Hospital of Yaoundé and the General Hospital of Yaoundé. The objective of this study was to describe the clinical presentation and the surgical treatment. We recorded 39 cases of cervical spondylosis due to myelopathy. The mean age of our patients was 56.3 years. All of them presented with a pyramidal syndrome. Cervical syndrome and brachialgia syndrome were found in 95% and 92.3% of patients. The mean duration of symptoms was 45.3 months. Radiological findings were uncinat process osteophytes in 48.7%, vertebral osteophytes in 41%, narrowing of neural foramina in 38.5% of cases. The C5-C6 intervertebral disc was affected in all cases. Laminectomy was the most frequent surgical procedure accounting for 79.5%.

Keywords: cervical spondylosis, myelopathy, diagnosis, surgical treatment, Cameroon

INTRODUCTION

Cervical spondylosis is a chronic degenerative condition affecting 75% of people above the age of 65 years [1,2]. The most severe complication resulting from narrowing of the cervical spinal canal is myelopathy; it affects almost 0.5% of the patients having cervical spondylosis [3,4,5]. Ischemia of the spinal cord is another important factor. The diagnosis has been refined since the advent of magnetic resonance imaging and the use of corticomotor and somatosensory evoked potentials. The treatment using medical methods and surgical methods provides satisfactory results [6,7,8,9]. The absence of a study dealing with this debilitating condition motivated the realization of this work. The objective of this study was to describe the clinical presentation and the surgical treatment in the city of Yaoundé.

METHODS

This was a cross-sectional descriptive study conducted between January 1994 and November 2005 in the neurosurgery departments of the Central Hospital of Yaoundé and the General Hospital of Yaoundé. Patients with a clinical or radiological diagnosis of myelopathy due to cervical spondylosis and operated were enrolled consecutively.

The study variables were the followings: clinical data, radiological parameters and surgical treatment.

SPSS 10 software were used for data analysis.

RESULTS

We retained 39 cases as shown in Figure 1. The mean age of the patients was 56.3 years with extremes: 40 and 76 years. The median was 59 ± 8.05 SD years. The male / female ratio was 3.33 to 1. The most represented age group was 60-69 years with 18 patients (46.1%).

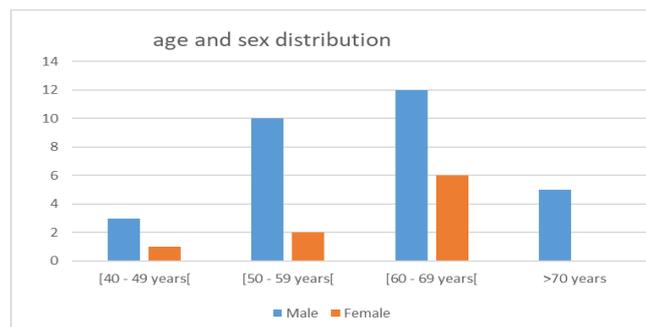


Figure 1: Age and sex distribution (n=39)

At the time of diagnosis as shown in Table I, we found a pyramidal syndrome in all patients, a cervical syndrome for 95% and a brachialgia syndrome for 92.3%. As part of pyramidal syndrome, motor deficit, spastic hypertonia, osteotendinous hyper reflex were observed in all cases. An extended plantar skin reflex (Babinski' sign) was present in 82% and perineal disorders in 23.1% of cases.

Table I : Clinical syndromes

Syndromes	Occurrence	Percentage
Pyramidal syndrome	39	100%
Cervical syndrome	37	95%
Brachialgia syndrome	36	92.3%
Posterior columns syndrome	19	48.7%
Vertebro basilar insufficiency syndrome	3	7.7%
Brown-Sequard syndrome	1	2.6%

The most frequent type of motor deficit was tetra paresis found in 28 cases ; followed by paraparesis in 8 cases (Figure 2).

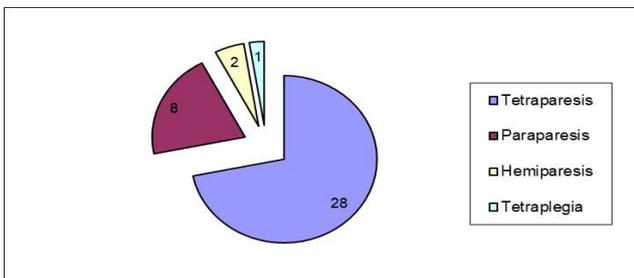


Figure 2:Types of motor deficit (n=39)

There were 9 cases of perineal disturbances, such as urinary incontinence found in 3 cases, urinary retention found in 2 cases, constipation found in 2 cases too and erectile impotency in 2 cases.

The mean duration of symptoms progression was 45.3 months (3.77 years) with extremes between 5 months and 144 months (12 years).The most represented group was that of duration greater or equal than 5 years with 13 patients (33.3%) as shown in Figure 3.

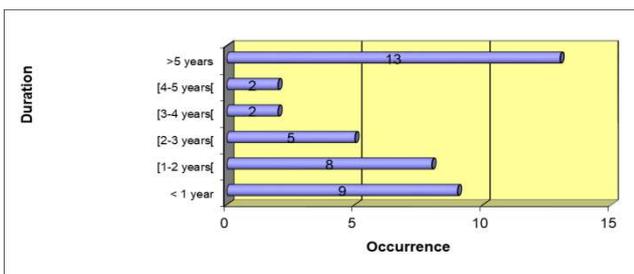


Figure 3: Distribution according to duration of symptoms (n=39)

From the radiological point of view, the most common signs were osteophytes of the uncinat process (48.7%); followed by vertebral osteophytes and the narrowing of the neural foramina with 41% and 38.5% respectively as show in Table II.

Table II: Types of radiological signs

Radiological signs	Occurrence	Percentage
Loss of disk height	14	35.9%
Narrowing of neural foramina	15	38.5%
Vertebral osteophytes	16	41%

Uncinate process osteophytes	19	48.7%
Osteocondensation	10	25.6%

The cervical spondylosis lesions were present in the vertebral junctions: C5-C6 in all cases as shown in Figure 4.

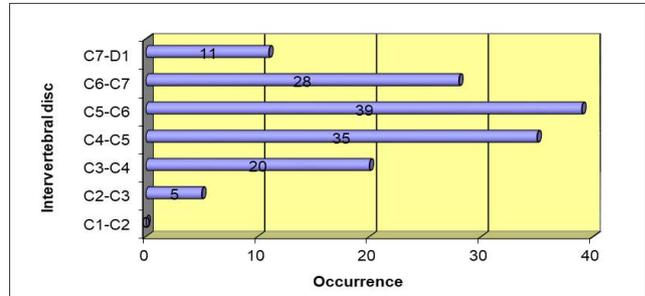


Figure 4: Distribution according to cervical spondylosis level

Based on the site of spondylosis lesions, we stated 3 types of spinal compression: anterior, posterior or mixed with 16, 0 and 23 cases respectively.

The most frequently performed procedure was laminectomy (79.5%). For 17 patients, the laminectomy involved 4 and 5 vertebral levels. The other procedures were somatotomy (7.7%), discectomy (7.7%) according to Robinson procedure and corpectomy- discectomy (5.1%) according to Cloward procedure. All these interventions involved several vertebral levels. The laminectomy was combined four times with a foraminotomy and affected 2 or 3 vertebral levels (Table III).

Table III: Types of surgical procedure

Type	Number of vertebral levels	Occurrence	Percentage	Total
Laminectomy	2 levels	3	7.7%	79.5%
	3 levels	11	28.2%	
	> 3 levels	17	43.6%	
Somatotomy	2 levels	1	2.6%	7.7%
	3 levels	2	5.1%	
Discectomy	2 levels	1	2.6%	7.7%
	3 levels	2	5.1%	
Corpectomy - discectomy	2 levels	2	5.1%	5.1%
Total		39	100%	100%

As part of surgical complications, we recorded 8 cases of minor hemorrhage and one case of neurological status worsening requiring further transfer of the patient.

DISCUSSION

The mean age of our patients was 56.3 years, similar to the founding of Roy-Camille (57 years) and Chagas in

Brazil (63.5 years) [6, 10]. In Africa, Andrews in Ghana [11] and Gueye in Senegal [12] recorded respectively 52 and 42 years. Their series included cases of myelopathy from various etiologies.

The mean duration of symptoms progression was 45.3 months (3.77 years) in our series. This delay was the same in the Roy-Camille series [6] (3.5 years); Chagas [10] reported a duration of 38.1 months; Gueye [12] noted a delay of 5.9 months between the onset of symptoms and treatment.

Pyramidal syndrome

The pyramidal syndrome was present in all our patients. Roy-Camille in 1984 [13] noted 13 allusive cases of a pyramidal syndrome out of 29. Later, in 1988 [6], with a larger sample of 42 patients, he reported the presence of pyramidal syndrome for 23 patients. Loembe in Gabon [14] also mentioned that all the patients had motor deficit. The lack of information and the poor orientation of the patients in our environment explain why patients do not arrive at the ad hoc consultation until the symptoms have become alarming. The lack of qualified personnel and the relatively high cost of examinations could also explain the delay in diagnosis. The resulting delay in diagnosis (more than 3 years) would then justify the severity of the symptoms at the time of diagnosis.

Tetraparesis was found in 71.8% of patients in our series; Loembe found a similar value (72.2%). Paraparesis, hemiparesis and quadriplegia were reported in our series in 20.5%, 5.1% and 2.6% cases respectively. Loembe [14] recorded 22.2% of paraparesis cases and 5.5% of quadriplegia cases. Roy-Camille [13] identified 13.8% paraparesis, 20.7% tetraparesis and 10.3% of patients were described as bedridden. The difference with Roy-Camille in quadriplegia can be explained by the fact that our series study the particular case of cervical myelopathy due to spondylosis.

Signs of perineal involvement were found in 9 patients. Hattori [15] noted that among the voiding disorders, the most frequent were obstructive (14 cases); the irritant signs were represented only in 5 patients and he noticed an association of the two types of signs in 11 patients.

He [16] noted that cervical myelopathy due to spondylosis is accompanied by a disorder of psychogenic erection while the reflexogenic erection remains preserved; moreover, surgical treatment improves sexual function in the majority of patients.

Posterior columns syndrome

Posterior columns syndrome was present 19 out of 39 patients in our series. It mainly consisted of paresthesia, tactile and proprioceptive sensitivity disorders in 33.3%, 46.1% and 48.7% cases. Similar to Roy-Camille [13] who found disturbances of deep

sensitivity and paresthesia in 48.3% of patients. Loembe [14] identified only 2 out of 18 cases of paresthesia.

Brachialgia syndrome

Twenty-two (56.4%) patients in our series had cervico-brachial neuralgia; Roy-Camille [6,13] identified successively in his two series 68.9% and 64.3% cases of neuralgia. Loembe [14] only noted 16.7% of cases of neuralgia.

Cervical syndrome

It's a common syndrome. It was reported for 95% of our patients. Loembe [14] identified 44.4% and Roy-Camille [6] 42.8% cases of cervical syndrome due to the difference of etiology of myelopathy.

Vertebrobasilar insufficiency syndrome

Despite the absence of a sudden collapse suggesting a syndrome of vertebrobasilar insufficiency, three patients in our study complained of disabling headache and dizziness (7.7%). Roy-Camille [6] noted 13.8% cases of headache and 6.9% cases of vertigo.

Radiological lesions

There was cervical spondylosis in the C5-C6 intervertebral space in all patients. Ngasseu [17] noted that the same level was involved in 21 out of 29 patients. Obisesan [18] noted that disc degeneration involved mainly the 5th intervertebral space and the C5-C6 space is most affected in Nigerian women. Chagas [10] noted that the C5 vertebra is the most affected (71.7%).

The intervertebral disc was the most affected part of our series with 31 cases; then came the uncinat process and the posterior inter-apophyseal joint with 29 and 23 cases respectively. Ngasseu [17] found the same order of frequency in his series.

We defined 3 types of spinal compression: anterior, posterior or mixed with 16, 0 and 23 cases respectively. Roy-Camille [6] identified the same types of compression in 24, 1 and 12 cases. The fact that myelography was used to identify these lesions when we only used standard radiography and CT scan could explain this difference. Patient's images from our series were not interpreted by the same operator; which recalls the limits of our analysis of radiological data.

Surgical treatment

Laminectomy was performed for 31 patients in our series; 3.6 vertebrae were involved in average during surgery. Discectomy of 3 vertebral discs for 2 patients and corpectomy - discectomy at 2 vertebral levels for 2 patients. Roy-Camille reported 7 laminectomies on average on 5 levels, 2 discectomies on one vertebral disc and 32 corpectomies on average of 3 vertebrae.

CONCLUSION

Cervical spondylosis due to myelopathy affects elderly patients. Patients usually consult at late stage of the illness in our milieu. The surgical treatment is possible here. Patients should be advised for early consultation in case of neurological disturbances.

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