

Cervical Compressive Myeloradiculopathy in Neurosurgery Consultation at Kipe Sino-Guinea Friendship Hospital: Epidemiological, Diagnostic and Therapeutic Aspects

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How to cite this paper: Souaré, I.S.Jr., Cherif, M., Boubane, D.T., Diawara, S. and Souaré, I.S. (2025) Cervical Compressive Myeloradiculopathy in Neurosurgery Consultation at Kipe Sino-Guinea Friendship Hospital: Epidemiological, Diagnostic and Therapeutic Aspects. *Open Journal of Modern Neurosurgery*, 15, 48-55.

<https://doi.org/10.4236/ojmn.2025.151006>

Received: October 2, 2024

Accepted: January 13, 2025

Published: January 16, 2025

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Abstract

Objective: To describe the epidemiological, clinical and therapeutic aspects of cervical compressive myeloradiculopathy seen in neurosurgery consultation at the Sino-Guinean Friendship Hospital (HASIGUI). **Material and Methods:** A prospective descriptive study was conducted at the Neurosurgery Department of the Sino-Guinean Friendship Hospital (Guinea, Conakry) over a 6-month period between May and November 2021. All patients seen in consultation, in whom the diagnosis of cervical compressive myeloradiculopathy (CRM) was established, were included. A survey form was used to collect epidemiological, clinical and therapeutic characteristics. **Results:** The hospital prevalence of cervical compressive myeloradiculopathy was 13.33%, or 42 cases among 315 neurosurgical pathologies. Men predominated (n = 34; 81%) with a mean age of 52.8 ± 11.4 years and extremes of 38 and 81 years; the professional categories of administrators and professionals were affected in the same proportion (15 cases, or 35.7% of cases); chronic neck pain was found in 38 patients (88.4%) as a previous history. The most common reasons for consultation were: neck pain (100% of cases), paresthesia of the fingertips (92.9% of cases), cervicobrachial neuralgia (78.6% of cases), weakness of the upper limbs (64.3% of cases), cramps (61.9%), sphincter disorders (38.1% of cases). The most common cause found on the basis of neuroimaging was cervicarthrosis in 40.3% of the cases, with an improvement of medical treatment in 59.5% and surgical decompression in 19% of the cases. **Conclusion:** Cervical compressive myeloradiculopathy is increasingly diagnosed in our working environment. It is the prerogative of the elderly subject, who has male pre-

dominance. Neurological signs are in the foreground. CT and/or MRI is the imaging test of choice for diagnosis.

Keywords

MRCC, Neurochirurgie, HASIGUI

1. Introduction

Cervicarthrosis or osteoarthritis of the cervical spine is a common pathology, occurring in approximately 50% of the population after 50 years of age and 75% after 60 years of age [1]. Nowadays, it affects about 10% of the population at age 25 and 95% of the population at age 65 [2].

Cervical compressive myeloradiculopathy (CRM) is defined by the existence of a chronic spinal cord injury syndrome related to degenerative lesions of the cervical spine, whether or not associated with congenital canal stenosis [2]. They are mostly caused by mechanical (expansive) nerve compression due to degenerative changes in the intervertebral discs, ligaments, vertebrae or facet joints, as seen in herniated discs, spinal canal stenosis and spondyloarthritis [3]. Standard radiology studies and MRI are usually sufficient for diagnosis; sometimes, CT and myéloscanner are necessary [4]. Cervical compression in myeloradiculopathy is mainly due to pressure on the anterior spinal cord with ischemia and deformation of the cord by anterior disc herniations, spondylitic spurs or ossified posterior longitudinal ligament [5]. Its evolution is often progressive with the onset of gait disorders (intermittent medullary claudication) and sensory disorders of the upper and or lower limbs. The association of pain or paresthesias of radicular systematization in an upper limb is frequent.

A sometimes-minimal trauma can aggravate the symptomatology in patients with pre-existing cervicarthrosis lesions, with the sudden installation of tetraplegia [6]. When the clinical symptoms remain deficient, in spite of a well-conducted medical treatment, a surgical decompression becomes indisputable and remains currently the only effective treatment for the evolution of this pathology [7]. In sub-Saharan Africa, data on this condition are poorly documented [8]. This motivated the realization of this study, the objective of which was to describe the epidemiological, diagnostic, and therapeutic aspects of MRCC seen in neurosurgery consultations at the Sino-Guinean Friendship Hospital.

2. Material and Methods

We conducted a prospective, descriptive study in the Neurosurgery Department of the Sino-Guinean Friendship Hospital over a period of 6 months from May 4 to November 5, 2021. All patients over 35 years of age, admitted for neurosurgical consultation and diagnosed with cervical compressive myeloradiculopathy were included. Cases of cervical pain without compression of cervical nerve structures

were not included.

A survey form was used to collect sociodemographic (age, sex, profession, etc.), clinical (reason for consultation, time of consultation, mode of onset, history, triggers, etc.), clinical neurological examination and imaging data from the patients.

3. Results

Figure 1 The hospital prevalence of MRCC was 13.33%, *i.e.*, 42 cases out of 315 neurosurgical pathologies recorded during the study period. The population consisted of 34 men (81%) and 8 women (19%), *i.e.*, a sex ratio of 4.25 with a mean age of 52.8 ± 11.4 years. The median age was over 50 years and the dominant age range was 35 - 44 years, with extremes of 38 and 81 years (**Figure 1**).

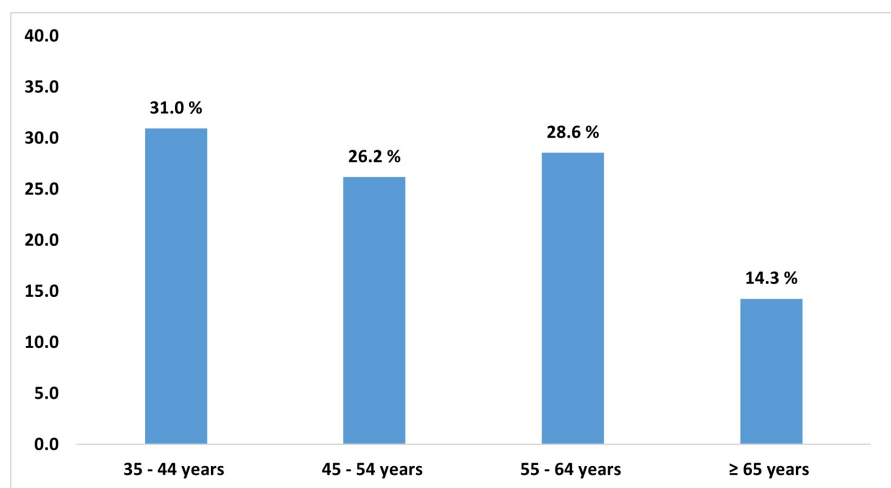


Figure 1. Age groups of 42 patients with cervical compressive myeloradiculopathy, Sino-Guinean Friendship Hospital (Guinea).

The professional categories: Administrators and professionals were affected in the same proportion (15 cases or 35.7% of cases). The average duration of evolution before the consultation was 6 months (31 cases), *i.e.*, 73.8%. The most dominant mode of onset of symptoms was progressive about 42.9% (**Figure 2**).

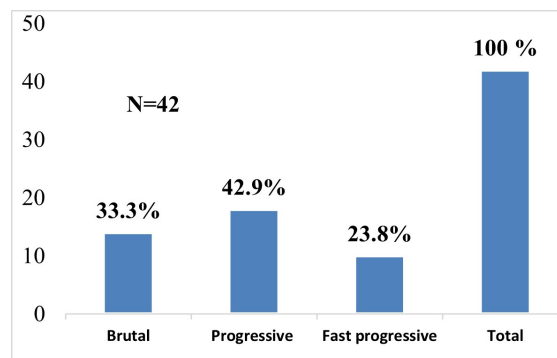


Figure 2. Mode of onset of symptoms in 42 patients with cervical compressive myeloradiculopathy seen in the neurosurgery consultation at the Sino-Guinean Friendship Hospital.

Table 1: The majority of patients had persistent neck pain, isolated or associated with other symptoms. The patients had a history of chronic neck pain (88.4% of the cases), voluntary neck cracking (44.2%), frequent carrying of heavy loads on the head (34.9% of the cases), cervical spine trauma (25.6%), and cervical spine surgery (2.4%). **Table 2:** Clinical examination data revealed the presence of signs of spinal cord or radicular compression, associated with a spinal syndrome, a lesion syndrome (radiculalgia) and a sub-lesion syndrome (motor, sensory, reflex and urinary disorders).

The standard X-ray performed in all patients showed an image of cervicarthrosis in 100% of cases. The CT scan was also performed in 100% of the cases and confirmed the image of cervicarthrosis with medullary and radicular compressive damage. MRI in 76.1% of patients showed intramedullary hypersignal, stepped disc pinching with disc protrusion compressing the spinal cord, and intramedullary cavitation (**Figure 3** and **Figure 4**). Regarding therapeutic management, the patients had a medical treatment composed of analgesics (100%), muscle relaxants (85.7%), and neurotropic (81%). Orthopedic treatment consisted of immobilization of the cervical spine with a cervical neck brace (100%) and physical therapy rehabilitation (88.1%).

Table 1. Reasons for consultation of 42 patients with cervical compressive myeloradiculopathy in neurosurgery consultation at the Sino-Guinean Friendship Hospital.

Reason for Consultation		N = 42	%
Spinal Cervical Sign	Persistent neck pain	40	95.2
	CBN	33	78.6
	Paresthesia (fingertips)	39	92.9
Spinal Signs Non-Cervical	Lombosciatica	11	26.2
	Walking disorder	7	16.7

CBN: Cervicobrachial neuralgia.

Table 2. Data from the clinical examination of 42 patients with cervical compressive myeloradiculopathy seen in the neurosurgery consultation at the Sino-Guinean Friendship Hospital.

Clinical elements		N = 42	%
Spinal syndrome	Spinal stiffness cervical	40	95.2
	Contracture of the paravertebral muscles	38	90.5
Radicular syndrome	Cervical sign of the bell	33	90.5
	Hermitte signs	40	95.2
Movement disorders	Paraparesis	25	59.5
	Paraplegia	17	40.5
	Tetraparesis	9	21.4
Sensory disorders	Sensitivity disorders	39	92.9

Continued

Urinary disorders	Dysuria, Incontinence	16	38
	Hoffman signs	29	69
Reflexes disorders	Quick reflex osteotendinous	37	88
	Babinski sign	21	50



Figure 3. MRI of the cervical spine in T2 sequence. Intramedullary hypersignal (arrow), C3-C4; C4-C5; C5-C6 stepped disc pinch with disc protrusion compressing the spinal cord.

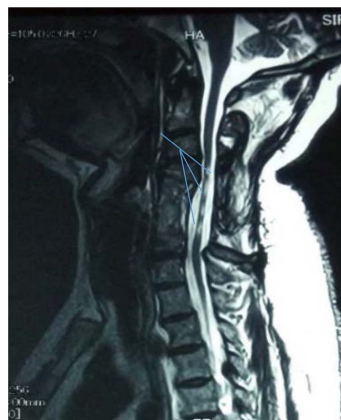


Figure 4. MRI of the cervical spine in T2 sequence. Intramedullary cavitation (arrow), with spinal cord deformation.

4. Discussion

The frequency of cervical compressive myeloradiculopathy is not well known in Guinea because of the inaccessibility of the most appropriate means of investigation due to cost.

The low frequency of cervical compressive myeloradiculopathy in this study (13.33%) could be explained by the fact that several departments other than neurosurgery manage this pathology, notably neurology, rheumatology, and even or-

thopedics. Our study was consistent with the data in the literature, concerning the frequency of the pathology in elderly subjects and the predominance of the male gender [9] [10]. (Figure 1) In our study, the majority of patients were in the age range 35 - 44 years (31%), with a median age of 53 during our study period, with an average age of 52.8 years. Indeed, the advanced age represents that of several degenerative pathologies with accelerated bone remodeling. Regarding gender, this male predominance could be justified by the arduousness of work in men compared to women. In our study, all professions were affected, with an equal predominance of both administrators and professionals (35.7%). This result is explained by the fact that in these professions, the spine is much more solicited. In fact, in our context, this last professional category (self-employed) would frequent health structures less because of the cost of the complementary examinations and resort more generally to traditional medicine. (Table 1) Clinically, neck pain was constant; it was either isolated (95.2%) or accompanied by other signs. (Table 1) It is a common sign in CDCR [1]. The frequency of non-cervical spinal signs (isolated low back pain or associated with gait disturbance) in 42.9% of cases showed the misleading character of these complaints, which did not immediately point directly to the cervical spine as cervical pain or CKD [11]. This could be explained by the average time of evolution before the consultation, which was 6 months (31 cases), 7 3.8%. Cervicalgia proves the chronic nature of this condition and its progressive course of the disease. (Figure 2)

(Table 2) The clinical manifestations of cervical compressive myeloradiculopathy are diverse and varied. In our study, the dominant functional signs cervicalgia, paresthesia and cervicobrachial neuralgia. However, cervicalgia is not a pathognomonic sign of compressive cervical myeloradiculopathy but is found in 100% of cases in our series. This result could be explained by the degenerative lesions favoring instability of the vertebrae. Paresthesia was the second most suggestive reason, found in 92.9% of cases. Our result is similar to that of Thierry *et al.* who found a frequency of 92.11%.

According to the clinical examination data, neurological deficits were in the foreground. These signs suggest the presence of a slow cervical spinal cord compression syndrome and reflect the severity of the disease. In Nigeria, according to a study by Ogunniyi A *et al.*, cervicarthrosis myelopathy was the leading cause of spinal cord compression [12]. While in Ethiopia, it occupied the second position [13]. Radiography showed cervicarthrosis in all patients, but CT and/or MRI allowed the diagnosis of spinal cord injury. CT shows all bony structures and their imprint on the marrow. MRI allows a better assessment of the extent of stenosis, venous stasis and the state of the marrow by showing a T2 hypersignal reflecting its suffering [14] [15]. It also allows appreciation of the disco-osteophytic protrusions, the posterior hypertrophies of the yellow ligaments and the posterior joint capsules [11]. The occurrence of a clinical picture of progressive cervical radiculomedullary compression, unimproved by medical treatments and authenticated by an MRCC on CT and/or MRI, justified, as in the literature, a neurosurgical inter-

vention, to rapidly relieve the spinal cord, stabilize the cervical spine and allow recovery of the neurological deficit [1] [15] [16].

5. Conclusion

Cervical compressive myeloradiculopathy (CRM) is increasingly diagnosed in our work environment. The etiologies are dominated by degenerative involvement in this study. The role of medical imaging (MRI, CT) is fundamental for the etiological orientation and the measurement of the cervical spinal canal. The medical treatment allows for improving the symptomatology and delaying the surgery. The surgical indication is given in front of a real functional discomfort in agreement with the anamnesis and the imaging.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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