

Profile of cervicobrachial neuralgia among rheumatology patients in Lomé, Togo

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Abstract

Objectives: To determine the frequency and the different clinical forms of cervicobrachial neuralgia in a rheumatological setting in Lomé, Togo.

Design: This was a cross-sectional multicenter study conducted from January 2012 to December 2018 on the records of patients seen in the three rheumatology units in Lomé, Togo.

Methods: Patients who reported for consultation purposely because of cervicobrachial neuralgia were included. Diagnosis of the various clinical forms of degenerative cervical spine disease was essentially clinical, whereas radiological imaging findings contributed to the diagnosis of spondylodiscitis and neoplastic disease.

Results: Cervicobrachial neuralgia was the reason for the clinic visit in 143 (0.69%) out of the 14,346 patients examined over the eight year study period. These 143 patients comprising 84 women (58.74%) and 59 men (41.26%) had a mean age of 53.36±13.33 years. The average time to consultation was two years. Degenerative disease (138 cases, 96.5%) was the most commonly observed pathology. It included the following clinical forms: cervical osteoarthritis (n=120; 83.91%), cervical myelopathy (n=13; 9.10%) and herniated disc (n=5; 3.49%). Disc degeneration in isolation (60.83%) was the main radiographic finding in patients with degenerative disease. Spondylodiscitis was probably due to tuberculosis in the four patients who had it and two of them were HIV-positive. Bone metastasis from prostate cancer was found in one case.

Conclusion: Cervicobrachial neuralgia appears to be significant among rheumatology patients in Lomé.

It predominantly affects adult women in professional activity. Although mainly dominated by degenerative pathology, its aetiologies can also be infectious as well as neoplastic, hence the relevance of modern imaging modalities.

Key words: Cervicobrachial neuralgia, Osteoarthritis, Spondylodiscitis, Tumours, Sub-Saharan Africa

Introduction

Studies on spinal diseases in Africa, although mostly conducted in hospital setting, have established the presence of such diseases on this continent¹⁻⁴. However, they are more often dealt with as low back pain⁵, low back pain with radiculopathy⁶ and neck pain^{7,8} than with Cervicobrachial Neuralgia (CBN)^{9,10}. CBN is a frequent symptom in cervical spinal disease, with an annual incidence, adjusted and estimated at 83 per 100,000 people¹¹. It is caused by injury to the nerve roots following a degenerative, infectious, neoplastic or inflammatory disease of the spine^{12,13}. Its aetiological diagnosis has been clearly improved by the advent of neuroradiological means of investigation, in particular Computed Tomography (CT) and Magnetic Resonance Imaging (MRI). The aim of our study was to determine the clinical signs and symptoms as well as the distribution of the different clinical forms of cervicobrachial neuralgia in a rheumatological setting in Lomé, Togo (West Africa).

Materials and methods

This was a multicenter, cross-sectional study carried out from January 1, 2012 to December 31, 2018 on the records of patients aged 18 years and above, received in consultation or

hospitalized for cervicobrachial neuralgia in the three rheumatology units in Lomé: CHU Sylvanus Olympio (Sylvanus Olympio Teaching Hospital), CHR Lomé-Commune (Lomé-Commune Regional Hospital) and Hôpital de Bè (Bè Hospital). The study was approved by the ethics committee. Data was collected using a survey sheet including data such as demographics (age, sex), clinical data (pain timeline, onset, clinical course, reason for hospitalization, and details from physical examination), paraclinical data (standard radiography (X-ray), Computed Tomography (CT), Magnetic Resonance Imaging (MRI)) and Etiological data on CBN. Diagnosis of the different clinical forms of degenerative cervical spine disease was essentially clinical, while radiological imaging findings contributed to the diagnosis of spondylodiscitis and neoplastic disease. Patients with no imaging were excluded. Data analysis was performed using SPSS software for Windows (Version 17.0).

Results

Cervicobrachial neuralgia was the reason for the clinic visit in 143 (0.69%) out of the 14,346 patients seen over the eight year study period. These 143 patients comprising 84 women (58.74%) and 59 men (41.26%) had a mean age of 53.36 ± 13.33 years (age range 23-85 years). Retailers were the most affected (28.673%) (Table 1).

Table 1: Distribution of patients by profession

	No.	(%)
Retailer	41	28.67
Housekeeper	18	12.59
Craftsperson	14	9.79
Office personnel	13	9.09
Labourer	13	9.09
Farmer	11	7.69
Health personnel	11	7.69
Teacher	07	4.90
Military	06	4.20
Engineer	03	1.40
Religious	03	2.10
Pensioner	03	2.10
Student	01	0.69
Total	143	100.00

The average consultation time was 2 ± 4.87 years with extremes of 7 days and 40 years. All of our patients consulted for neck pain radiating into one or both upper limbs. Neck pain preceded radiculalgia (115 cases; 80.41%), immediately radiated (17 cases; 11.9%) and occurred after radiculalgia (11 cases; 7.69%). A triggering factor was found in 39 cases (30.47%). Data from the patient medical history and physical examination are summarized in Tables 2 and 3. Degenerative disease (138 cases, 96.5%) was the most commonly observed pathology (Table 4).

Table 2: Distribution of key data from patient medical history according to aetiology

	Cervical osteoarthritis (120 cases) No. (%)	Cervical myelopathy (13 cases) No. (%)	Herniated disc (5 cases) No. (%)	Spondylodiscitis (4 cases) No. (%)	Tumours (1 case) No. (%)
Onset					
Gradual	78(65.00)	8(61.53)	3(60)	1(25)	1(100)
Sudden	35(29.16)	2(15.38)	2(40)	3(75)	0(0)
Clinical course					
Flare-ups	26(21.66)	1(7.69)	1(20)	0(0)	0(0)
Intermittent	24(20)	2(15.38)	0(0)	1(25)	0(0)
Constant	11(9.16)	2(15.38)	0(0)	3(75)	1(100)
Pain timeline					
Mechanical	86(71.66)	8(61.53)	5(100)	0(0)	0(0)
Inflammatory	23(19.16)	3(23.07)	0(0)	4(100)	1(100)
Mixed	9(7.50)	1(7.69)	0(0)	0(0)	0(0)
Paresthesia					
T-N*	44(36.66)	4(30.76)	3(60)	0(0)	0(0)
Tingling	30(25.00)	5(38.46)	0(0)	1(25)	0(0)
Numbness	5(4.16)	2(15.38)	1(20)	1(25)	0(0)
Radiation					
C5	24(20.00)	1(7.69)	0(0)	0(0)	1(100)
C6	11(9.16)	3(23.07)	0(0)	0(0)	0(0)
C5-C6	30(25.00)	0(0)	1(20)	0(0)	0(0)
C7	11(9.16)	1(7.69)	0(0)	0(0)	0(0)
C6-C7	8(6.66)	1(7.69)	1(20)	0(0)	0(0)
C8	5(4.16)	1(7.69)	0(0)	0(0)	0(0)
Poorly localized	14(11.66)	2(15.38)	3(60)	2(50)	0(0)

*: Tingling-Numbness

Table 3: Distribution of key data from physical examination according to aetiology

	Cervical osteoarthritis (120 cases) No. (%)	Cervical myelopathy (13 cases) No. (%)	Herniated disc (5 cases) No. (%)	Spondylodiscitis (4 cases) No. (%)	Tumours (1 case) No. (%)
BMI (kg/m ²) $\bar{x} \pm SD$	27.16 \pm 5.32	23.13 \pm 2.31	20.78 \pm 4.58	20.29 \pm 5.70	-
Torticollis	9(7.50)	0(0)	0(0)	0(0)	0(0)
Painful mobilization	75(62.50)	3(60)	8(61.53)	3(75)	1(100)
Elective	75(100.00)	3(100)	8(100)	0(0)	0(0)
Global	0(0)	0(0)	0(0)	0(0)	1(100)
Stiffness	42(35.00)	3(60)	6(46.15)	3(100)	0(0)
Elective	34(80.95)	3(100)	6(100)	4(100)	0(0)
Globale	08(19.05)	0(0)	0(0)	0(0)	0(0)
Tinnitus	38(31.66)	0(0)	6(46.15)	4(100)	1(100)
Sensory disorders				2(50)	
Hypoesthesia	04(3.33)	0(0)	3(23.07)	1(25)	0(0)
Hyperesthesia	01(0.83)	0(0)	0(0)	0(0)	0(0)
Motor disorders					
Hemiparesis Mono-	02(1.66)	0(0)	0(0)	0(0)	0(0)
paresis Paraparesis	05(4.16)	1(20)	3(23.07)	0(0)	0(0)
Tetraparesis Tetraplegia	03(2.50)	2(40)	3(23.07)	2(50)	0(0)
	0(0)	0(0)	4(30.76)	0(0)	0(0)
	0(0)	0(0)	0(0)	1(25)	0(0)
Reflex disorders					
Bicipital					
Exaggeration	4(3.33)	2(40)	4(30.76)	1(25)	0(0)
Abolition	6(5)	0(0)	1(7.69)	0(0)	0(0)
Diminution	3(2.50)	0(0)	0(0.00)	1(25)	1(100)
Tricipital					
Exaggeration	4(3.33) 5(4.16)	2(40)	4(30.76)	1(25)	0(0)
Abolition	2(1.66)	0(0)	1(7.69)	0(0)	0(0)
Diminution		0(0)	0(0)	1(25)	1(100)
Brachioradialis					
Exaggeration	4(3.33)	2(40)	4(30.76)	1(25)	0(0)
Abolition	5(4.16)	0(0)	1(7.69)	0(0)	0(0)
Decrease	3(2.50)	0(0)	0(0)	1(25)	1(100)
Ulnar					
Exaggeration	4(3.33)	2(40)	04(30,76)	1(25)	0(0)
Abolition	5(4.16)	0(0)	01(07,69)	0(0)	0(0)
Decrease	2(1.66)	0(0)	0(0)	1(25)	1(100)

Table 4: Demographics of the 143 patients according to diagnosis

	Sex-ratio (M/F*)	Age (years) at consultation $\bar{x} \pm SD^{**}$	Time to progression (months) $\bar{x} \pm SD^{**}$
Degenerative cervicobrachial neuralgia			
Cervical osteoarthritis	46/74	52.12 \pm 12.47	25.15 \pm 61.97
Cervical myelopathy	6/7	60.46 \pm 14.75	23.20 \pm 35.94
Herniated disc	4/1	55.20 \pm 23.31	10.25 \pm 11.29
Secondary cervicobrachial neuralgia			
Spondylodiscitis	2/2	57.25 \pm 03.30	01.82 \pm 1.27
Tumours	1/0	85	24

* : Male/Female ; ** : mean \pm standard deviation

Degenerative disease included the following clinical forms: cervical osteoarthritis (n=120; 83.91%), cervical myelopathy (n=13; 9.10%) and herniated disk (n=5; 3.49%). Disc degeneration in isolation (60.83%) was the main radiographic finding in patients with degenerative disease. Spondylodiscitis was probably due to tuberculosis, with a mean clinical course of 1.82 months in the four affected patients and two of them were HIV-positive. No patient had a gibbosity. Bone metastasis from prostate cancer was identified in one case. The mean duration of treatment was 1.88 ± 1.92 months, ranging from 7 days to 12 months. Treatment was medical (96.50%), functional (13.28%) or surgical (1.39%).

Discussion

Cervicobrachial Neuralgia (CBN) is rare (0.99%) in rheumatology practice in Lomé and it mainly has a degenerative aetiology. Rigorous interpretation of these results requires taking into consideration the shortcomings related to selection bias and limited technical platform. This was a hospital-based study which only took into account consultants from the rheumatology units of Lomé, thus constituting a bias which makes it impossible to generalize our results. Shortage in early diagnostic means (MRI, bone scan) made it impossible to discover certain tumours and infections at the pre-radiological stage. Moreover, not all rheumatic patients report to health centers; many of them consult traditional healers. Nevertheless, these shortcomings of our study do not affect its epidemiological importance.

The low prevalence of CBN in our study is relatively lesser than what was found in other African studies^{3,10}. This is due to the fact that its management is multidisciplinary, so patients suffering from it may end up in other departments as well (neurology, neurosurgery).

CBN frequently occurs in young and older adults, regardless of gender according to literature^{3,4,7,10,14}. The long timeframe before consultation (2 years) can be explained by the geographical inaccessibility of specialized care structures and the insufficient number of specialists (neurologists, rheumatologists and neurosurgeons). The data from patients' medical history and the physical examination are consistent with literature and are explained by the high mobility of the lower cervical spine and the frequency of osteoarthritis of the C5-C6 and C6-C7 discs^{9-10,14}. Predominance of degenerative aetiology, with cervical osteoarthritis dominating our sample, is consistent with other African^{8,15,16} and Western^{17,18} studies in which psychological factors play an important role in the chronicity and persistence of the pain.

The poor treatment suffered by the cervical spine during our daily activities (especially carrying loads on the head which is a common practice in our country) largely explains this predominance. These practices often lead to disc worn out and thus, genesis of cervical osteoarthritis. Cervical myelopathy occurs between the ages of 50 and 60 years, regardless of gender; it is characterized by a long clinical course and severe neurological dysfunction with a predominance of gait disturbances according to literature¹⁹⁻²¹. The low rate (1.39%) of surgical care can be explained on the one hand by the small number of neurosurgeons together with the limited technical platform and on the other hand by the unfavorable socio-economic conditions limiting the performance of imaging investigations, in particular the CT scan and the magnetic resonance imaging. CBNs secondary to infections are rare²²⁻²⁴ despite the importance of infectious pathologies which is fairly well known in literature²⁵⁻²⁷. In our sample, the absence of gibbosity can be explained by the short clinical course. CBNs secondary to tumours are very rare in literature^{8,5,28}.

Conclusion

Cervicobrachial neuralgia appears not to be negligible among rheumatology inpatients in Lomé. It mainly affects adult working women. Although essentially dominated by degenerative pathologies, its aetiologies are infectious and tumoural as well, hence the relevance of modern imaging modalities.

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