Acta Scientific MEDICAL SCIENCES (ISSN: 2582-0931)

Volume 8 Issue 4 April 2024

Research Article

Lumbar Radiculopathy due to Lumbar Disc Herniation at the University Hospital of Brazzaville

Affleck Romaric Ledier Angalla[1,2]*, Norbert Lamini[1,2], Akoli Ekoya[2], Chabel Nkouala kidédé[2], Francina Omboumahou Bakale[2], Ana Précieu Salémo[2], Léon Boukassa[1,3] and Honoré Ntsiba[1,2]

[1]Faculty of Health Sciences, Marien Ngouabi University, (Brazzaville, Congo), Republic of the Congo

[2]Department of Rheumatology, Brazzaville University Hospital Center, Republic of the Congo

[3]Department of Neurosurgery, Brazzaville University Hospital Center, Republic of the Congo

***Corresponding Author:** Affleck Romaric Ledier Angalla, Department of Rheumatology, CHU Brazzaville, Republic of the Congo.

DOI: 10.31080/ASMS.2024.08.1789

Received: March 01, 2021

Published: March 20, 2024

Abstract

Objective: To contribute to improving the care of patients with a herniated disc.

Patients and Method: This is a cross-sectional study, descriptive and analytical conducted from January 2002 to January 2012, a period of 10 years. The diagnosis of herniated disc was suspected due to common Lumbar Radiculopathy, lumbar spinal syndrome and L5, S1 or L4 radicular syndrome. It was confirmed on saccoradiculography or CT scan.

Results: 91 patients were included including 55 women (60%) and 36 men (40%), sex ratio : 0.65. The average age was 55 years with extremes of 28 and 80 years. Lumbaradiculalgia was the main clinical manifestation. L5 radiculalgia was found in 57%, S1 in 32% and L4 in 11%, including 55% of right attacks, 28.5% bilateral and 16.5% left. The average BMI was 25.4 +/- 5.6 kg/m^2. Standard radiography was performed in all patients, saccoradiculography in 83.5% and lumbar CT scan in 30.7%. There is 83.5% u of root compression associated with compression of the dural sac. The L4-L5 herniated disc was found in 61.5%, L5-S1 in 22% and L3-L4 in 16.5% of cases. The treatment Medical was established first gr e intention. All patients were treated with analgesics, anti-inflammatory non- steroidal (95%), relaxants muscle (21%). The infiltrations concerned 98%, functional rehabilitation 82% and conventional surgical treatment 46% of cases. The surgery performed was discectomy with laminectomy. The outcome under medical treatment was favourable in 53.85% of cases. Of the 42 operated patients, 57 1% had painful sequelae, 28.6% had no sequelae, 14.3 paraplegia.

Conclusion: The herniated disc remains a public health problem. It is advisable to know this nosologically entity in order to better take charge of it.

Keywords: Lumbaradiculalgia; Herniated Disc; Discectomy; Laminectomy

Introduction

The herniated disc produces a pain syndrome associating a spinal component and a radicular component resulting from the compression of the nerve roots [1]. It can be complicated by clinical manifestations of deficit. As a result, surgical management becomes

an emergency [2,3]. Herniated discs are seen in men as well as in women. Among the risk factors are: physical exertion, load bearing, overweight, acute low back pain, chronic low back pain. MRI and CT are complementary examinations of certainty for the diagnosis of herniated disc [2]. The treatment is effective in 90% of cases in non-deficit forms [1,3]. The rehabilitation functional prominently prescribing spinal saving tips and exercises for maintenance. The surgery is the last resort after failed medical treatment, with an efficiency of around 76% [4]. There are no population surveys on herniated discs in sub- Saharan Africa. There are a few studies in middle hospital (theses and dissertations) cannot be extrapolated to the general population [5,6].

Aim of the Study

The aim of our study was to help improve the management of patients with herniated discs at the Brazzaville University Hospital, by determining their epidemiological, clinical, therapeutic and evolutionary profile.

Patients and Methods

This is a study cross, descriptive and analytical, conduct e January 2002 to January 2012, or 10 years in the Rheumatology Department and of versatile Surgical C between Hospitalier U university Brazzaville, Congo. Among 388 hospitalized patients, we sought on the basis of anamnesis, clinical, and imaging and biological signs of the lumbaradiculalgia by herniated disc. The diagnosis of lumbaradiculalgia by herniated disc has been selected based on the following arguments: on the clinical level by the existence of a history of low back pain or lumbaradiculalgia, the mechanical nature of the pain with radicular irradiation (L4, L5, S1), the absence of general signs, the existence of a spinal syndrome (analgesic attitude index Schober, distance fingers - ground), a radicular syndrome (Lasegue sign Leri, sign femoris and sign of the bell), the abolition or reduction of reflexes tendon, a hypo or anaesthesia, a paraplegia or paresis.

In terms of imaging

- At the X-ray standard, the existence of guidance indirect signs such as parallelism trays vertebral, a yawn disc intervertebral, disc space narrowing.
- With the scanner, by the demonstration of a herniated disc.
- On MRI, evidence of a herniated disc with T2 hypersignal.

At the biological level, absence of the biological inflammatory syndrome.

Therapeutically, by the demonstration of a herniated disc during the surgical intervention.

Of these, 9 1 case of a disc herniation cases documented are the subject of this study. Excluded were patients whose medical records contained no biological or radiological minimum balance, the other lumbaradiculalgia not common disc, sciatica symptomatic (spondylitis infectious, tumour and inflammatory). The epi info software version 3.5.1 and Excel 2007 enabled the analysis of clinical data.

Results

These 91 patients, 55 women (60%) and 36 men (40%), whose average age was 55 years with extremes of 28 and 80 years. The 49 - 58 age group was the most represented with 20% male patients and 14.19% female patients (Table 1). The sex ratio is 0.65. P mong our patients, 66% of cases were active and 34% of the inactive. A history of low back pain was found in 30 patients followed by arterial hypertension in 17 cases, diabetes mellitus in 7 cases, cervicobrachial neuralgia in 5 cases, trauma to the spine and other pathologies in 3 cases each. The onset mode was progressive in 79 cases (87%) and abrupt in 12 cases (13%). L has pain lumbaradiculalgia was intense in 44 cases (48.4%), average in 40 cases (43.9%) and hyperalgesia in 7 (7.7%), with an average of the pain intensity on the '67% VAS + - 12. The root topography was L5 in 57% of cases (n = 52), S1 in 32% of cases (n = 29) and L4 in 11% of cases (n = 10). Radiculalgia was unilateral in 65 cases (71.5%) and bilateral in 26 cases (28.5%) (Table 2). The schedule of pain was mechanical in 75 cases (82.42%) and pseudo-inflammatory in 16 cases (17.58%). L has pain was impulsive coughing, sneezing and/or defecation in 68 cases and associated with intermittent claudication in 55 cases. The body mass index (BMI) was measured in 51 patients, 41 patients again into a normal BMI, 9% of cases (n = 8) were overweight and 2% of cases (n = 2) obese. The average BMI was 25 + -5.6 kg/m^2.

Clinically, the spinal syndrome was found in all patients (100%) made of: pain on palpation of the spinal spines, contracture of the paravertebral muscles in 100% each, a direct analgesic attitude in 72 cases (79.10%), a scoliosis attitude in 15 cases (16.50%) (Figure 1) and a reversal of lumbar lordosis in 4 cases (4.4%). Scarification lesions reflecting the patient's journey in our context were found in 14 cases (15%) (Figure 2). On mobilization, 6 patients (62%) had an average Schöber index of 13.48 cm and 40% of pa-

Age	Man		Women		Total	
	n	%	n	%	n	%
28-38	21 23.07	4.44	3	3.27	7.70	
39-48	31 34.06	8.90	13	14.19	21	23.07
49-58	19 20.87	20	13	14.19	31	34.06
59-68	9 9.90	4.44	15	16.36	19	20.87
69-78	4 4.40	2.22	7	7.63	9	9.90
79-88	91 100	0	4	4.36	4	4.40
Total	36	40	55	60	91	100

Table 1: Distribution of patients according to age and sex.

tients had a finger-to-ground distance greater than zero cm, lumbar segmental stiffness was found in 37 cases (40.7%). Lasègue's sign was tight less than 30° in 21 cases (23.2%), between 30 and 60° in 35 cases (38.4%) and greater than 60° in 35 cases (38.4%). Léri's sign was found in 10 patients, the rural sign in 10 cases and the doorbell sign in 79 cases. Atrophy of the quadriceps was found in 3 patients who had a sign of rural with an average of 10cm. The sensitive motor deficit was found in 36 patients, it was hypoesthesia in 18 cases (20%), monopoiesis in 8 cases (9%), monoplegia in 7 cases (8%) and anaesthesia in 3 cases (3%). The motor deficit was located on the L5 nerve root in 9 cases (9.9%), S1 and L4 in 3 cases (3.3%) each. Achilles and patellar reflexes were reduced in 5 cases (5.49%) each.

Root topography	Left	%	Right %	%	Bilateral	%	Total	%
L5	9	9.9	32	35	11	12.1	52	57
S1	3	3.3	12	13.3	14	15.4	29	32
L4	3	3.3	6	6.6	1	1.1	10	11
Total	15	16.5	50	55	26	28.5	91	100

Table 2: Sites of lumboradiculalgia**.**

Figure 1: Scoliosis attitude.

Figure 2: Scarification lesions along the path of the L5 sciatic nerve.

In terms of medical imaging, standard radiography was performed in all patients, it had shown parallelism of the vertebral endplates in 3 cases (3%) and yawning of the intervertebral disc in 2 cases (2%). Saccoradiculography (Figure 3) was performed in 76

patients (83.5%), it showed root compression (L3, L4, L5 and S1) associated with compression of the dural sac in 61 cases (80.26%) and only compression of the dural sac in 15 cases (19.74%). The lumbar spine CT scan was performed in 28 patients, it showed a herniated disc (Figure 4) and a disco radicular conflict in 27 cases (96.4%) and one case of post-surgical fibrosis.

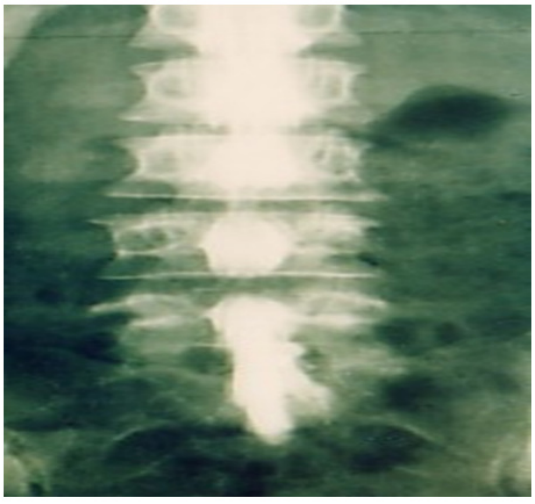

Figure 3: L4-L5 herniated disc saccoradiculography.

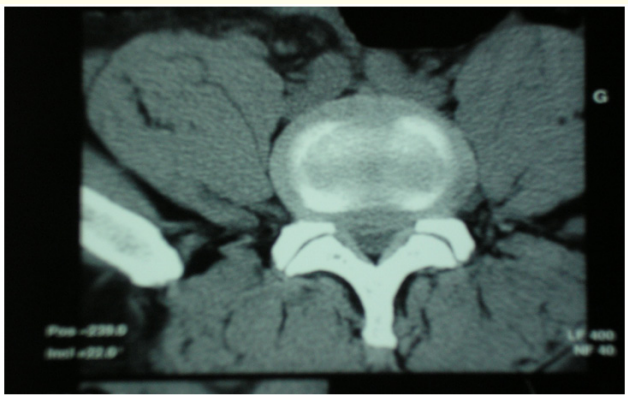

Figure 4: CT scan of the lumbar spine showing a herniated disc.

Biologically, the mean haemoglobin value was 14.2 + -2.2 g/dl. The average sedimentation rate was 10 + -5 mm at the first hour. The C- reactive protein was negative in all patients.

Therapeutically, a treatment medical was established in all patients combined analgesics see 1.23rd WHO level in 100% of cases, anti-inflammatory non- steroidal in 87 cases (95%), muscle relaxants and neuroleptics in 20 cases (21%) and infiltrations in 89 cases (98%) including 62 paravertebral and 27 epidural cases through the sacrococcygeal hiatus. Physical treatment was instituted in 75 patients (82%). 48 of our patients had undergone surgery for intractable LBP in 27 cases and paralyzing LBP in 15 cases. Surgery was scheduled in 42 cases (85.7%) and emergency in 6 cases (14.3%). The change in the short term was favorable under medical treatment in 49 cases (53.85%). The immediate postoperative effects were simple in 41 cases (97.62%) and one case of infectious spondylodiscitis with banal germs. In the medium long term, among the 42 operated patients, 24 (57.1%) had disabling painful sequelae, 11 (28.6%) without sequelae and 6 (14.3%) had a post-surgery motor deficit occurring in an average delay of 5 months.

Discussion

In our study the average age was 55 years with extremes of 28 and 80 years. The most representative age group was between 39 and 59 years old. Women (60%) outnumbered men (40%). A study carried out in Togo in Lomé reported an average age of 47.11 + -13.33 years with a sex ratio of 0.61 [6,7]. Iba Ba J, Mwanyombet L., *et al*. in Gabon noted an average age of 51.8 + -9 years with a sex ratio of 0.5 [8]. Ouédraogo D., *et al*. in Burkina Faso reported an average age of 42.5 years with extremes of 15 and 81 years and a sex ration of 0.7 [9]. Singwé-Ngandeu in Cameroon reported similar results with an average age of 43.7 years [10]. Kutoloka., *et al*. in the Democratic Republic of Congo had reported an average age of 48.4 + -11.6 years, of which 58% were men. Rudy TE., *et al*. in the USA reported an average age of 73.6 + -5.2 years with an identical population on gender (men 50.92% and women 49.02%) [11]. This difference in the average age could be explained by life experience, which is higher in the countries of the North. Profession plays a significant role in the occurrence of a herniated disc [12]. In our study, the proportion of sedentary patients represented two thirds of our patients. Ouedraogo D Burkina Faso had found close enough results of ours that 69.2% of workers sedentary and 30.8% force workers [9]. Loembé PM in Gabon Vait noted 60.9% force workers [13]. The onset mode was progressive in 87% of the cases in our series. Singwe-Ngandeu in Cameroon had reported similar results with 85.72% of the cases that the top was progressive [14]. In the series of Kutoloka S Kinshasa, the average consultation time was 5 months [15]. Millogo A., *et al*. in Burkina Faso l 'were noted

in 75% of cases [16]. Rudy TE., *et al*. in the USA reported an average duration of evolution of 14.2 + -14.6 years [11]. In our series, the lumbaradiculalgia was intense in 48.40% of cases, moderate in 43.9% and hyperalgesic in 7.7%. Very few studies describe the intensity and type of symptoms in subjects with low back pain or during low back pain. A study group spine company French Rheumatology dealing with back pain the sujet old: clinical description and impact, describes the intensity of pain in 4 categories according to Paris Task Force: group 1 (34.9% moderate intensity), category 2 (21.7% hyperalgesic), category 3 (23.6% intense), category 4 (19.8% moderate) [17,18]. These results are comparable to those of our study. We found an average pain intensity on the VAS of 67% + - 12. Larache in France had noted an average of 47 + -24 [19]. We found 57% of cases of L5 sciatica, 32% of S1 sciatica and 11% of cruralgia. The pains were of mechanical rhythm in 75 patients (82.42%) and pseudo-inflammatory in 16 cases (17.58%). Singwe-Ngandeu in Cameroon Vait reported results that go in the same direction as ours with 70.24% of sciatica L5, S1 23.81% and 5.95% of femoral neuropathy, has with a rhythm mechanics at all patients [10]. Sylvie Rozenberg in France Vait reported 53,3% pain mechanical, 3.7% pain nickname inflammatory and 44% of mixed pain [17]. In our series the average BMI was 25.4 + -5.6 kg/m $^{2.}$ Ouedraogo D., *et al*. in C removes D 'Ivoire and Rozenberg S., *et al*. e n France had reported results quite close to ours with a respective BMI 26,16kg/m^2 and 26.5 + -4,4kg/m^2 [9,20]. In our study, 79.10% of patients had a direct analgesic attitude, 16.50% a scoliosis attitude and 4.4% a lumbar lordosis reversal. In the study by Mijiyawa., *et al*. in Togo, the direct analgesic attenuation was not evaluated, 9.02% of cases had a scoliosis attitude and 1.71% a loss of lumbar lordosis [6,7]. In s e series of Ouédraogo D., *et al*. in Burkina Faso and the Ben Fredj H., *et al*. e n Tunisia, analgesic attitude was found respectively in 55.77 and 46.86% of cases [9,21]. In our study the index of e Schöber average was 13,48cm in 56 patients. Our results are close to those of Mijiyawa M., *et al*. who reported 58.30% of patients whose Schöber index was less than 15cm [7]. Thus, in Ouédraogo D., *et al*. who reported an abnormal Schöber index in 81.82% of cases [9]. The finger-to-ground distance in our study was greater than zero cm in 40%. Mijiyawa M., *et al*. had found a finger-to- ground distance greater than zero cm in 12.90% of cases [7]. This could be explained by the hyperlordosis characteristic of the African [6]. Lasègue's sign in our series was between 30 and 60 ° in 35 cases (38.4%) and below 30° in 21 cases (23.2%). Kobayashi., *et al*. found 46.88% of patients with Lasègue's sign below 30° and 53.12% between 30° and 60° [16]. In our series, the doorbell sign was present in 79 cases (86.8%). Mijiyawa million of 1108 patients had recovered 37.87% of patients with a sign of the bell [6] and Ouédraogo D., *et al*. in Burkina Faso have noted in 62.63% of cases [9]. In our series, 57% of patients had L5 radicular syndrome, 32% S1 and 11% L4 radiculalgia. Iba Ba J., *et al*. in Gabon found L5 radiculalgia in 61.53% of cases [8]. Ouédraogo D in Burkina Faso had noted 67.1% of L5 radiculalgia, 21% of S1 radiculalgia, 7% of truncated L5 radiculalgia, 4.9% of L5 and associated S1 radiculalgia [9]. Millogo A in Burkina Faso reports 40% L5 radiculalgia, 30% S1 radiculalgia [15]. The involvement was unilateral right in 55% in our study, 28.5% bilateral localization and 16.5% of cases left unilateral radiculalgia. Mijiyawa M., *et al*. had noted 88.27% unilateral nerve root 11 and, 73% of radicular bilateral [7]. In our series 40% of the patients had a sensory-motor deficit, including 17% with a motor deficit rated on average at 3 (muscle strength) and 23% of sensory disorders. In patients with a motor deficit 9.9% had a deficit involving the L5 territory. Ouédraogo D in Burkina-Faso observes a motor deficit of 22.38 [9]. Ben Fredj H in Tunisia reports 8.4% of cases [21]. In our series, 5 patients, i.e. 5.49% p, had problems with the tendon reflexes. Mijiyawa M., *et al*. have reported similar results with 6.4% cases [7].

In our study, 83.5% of cases had achieved a saccoradiculography and 30.76% were able to achieve a lumbar scanner. However, in the Ouédraogo D series in Burkina Faso, 39.2% of patients had a CT scan [9]. The diagnosis of the hernia was made either by saccoradiculography or by CT scan. None of our patients has been able to achieve a magnetic resonance imaging in exist an you in Brazzaville. In our study, 61 patients or 80.26% had root compression (L3, L4, L5, or S1) associated with that of the dural sac and 15 patients or 19.74% had only compression of the dural sheath on saccoradiculography. According to ANAES recommendations, "the indication for CT or MRI should remain exceptional depending on the clinical context, necessarily preceded by a standard radiographic assessment" [20]. In our series, 28 patients had a CT scan, showing a herniated disc in 96.4% of cases and fibrosis in 3.6% this low rate of CT scan is linked to the late acquisition of the CT scan in our country (during 2004) and the precariousness of our patients unable to cope with high-cost imaging examinations. Ben Fredj H in Tunisia had found 88.4% of herniated disc on the scanner [21]. In our study, 61.5% of patients had an L4-L5 herniated disc, 22% had an L5-S1 herniation and 16.5% had L3-L4. Ouedraogo D., *et al*. have

reported on similar results with 76.78% of disc hernia L4-L5 and 23.2% of herniated L5-S1 [9]. Loembé PM is bonded has u Gabon had reported 60.9% of L4-L5 disc hernia, 23,1% of discal hernia L5 - S1 and in 13% of cases there were two levels L2-L3, L3-L4 [13]. Kutoloka S Kinshasa has Vait noted that the floors L4-L5 were the most frequently affected [14]. Singwe-Ngandeu in Cameroon Vait found 67.86% of L4-L5 disc hernia, 22.62% of hernia L5-S1, 5.95% by L3-L4 and 3.75% in case of a L4-L5 combination/L5-S1 [10]. In 56.25% the herniated disc was in L4-L5 and 43.75% in L3-L4 in the study by Kobayashi., *et al*. In Japan [16]. However, Yang H., *et al*. has ux USA had reported 54.6% of herniated disc L5-S1; 49.9% L4-L5 hernia, and 4.5 in L3-L4 [22]. In our series, the average length of bed rest was 4 days. Six systematic reviews of ten randomized trials compared the effect of bed rest with alternative treatments (exercise, physiotherapy, manipulations) or no rest. These studies have shown that rest had no favorable effect or had a negative effect on pain variables [23,24]. All our patients were on nonsteroidal anti-inflammatory drugs. Ben Fredj H., *et al*. Tunisia had similar results with 85.7% of patients on non-steroidal anti-inflammatory and 98.3% in analgesics [25]. In our study, 89 patients or 98% fl have treated by local infiltration with a delay corticosteroid, 21% of our patients with the antidepressants or muscle relaxants. While Ben Fredj H ratio is 6.7% of patients on antidepressants, muscle relaxants in 17% and 56.3% in oral corticosteroids. Local infiltrations concerned 98% of our patients against 87.7% in the series of Ben Fredj H in Tunisia [25]. With regard to physical treatment by physiotherapy, our results (82%) are comparable to those of Ben Fredj H (96.7%) [25]. It can be done through educational programs taught in groups to promote the learning of cognitive (knowledge acquisition s on the anatomy and the function spinal) and also such sensorimotor (mastery of skills Matrices) to allow the reduction of mechanical forces exerted on vertebral colon: they are back schools. For herniated discs, radical treatment of lumbar herniated discs should only be considered if medical treatment has been shown to be ineffective [23]. In our series, 46% of our patients benefited from surgical treatment, including 85.7% (36 patients) for scheduled treatment against 14.7% (6 patients) in emergency. The operative technique consisted of a discectomy with laminectomy. In our series, we observed a favorable clinical outcome after medical treatment in 49 patients, i.e. 53.858%. Benoist million in France Vait reported a favorable trend in 66.66% of cases [3] and Ben Fredj H., *et al*. in 95.3% [25]. Among our 42 patients who received surgical treatment, 57.1% had painful sequelae, 28.6% had no sequelae and 14.3% presented a post-surgical motor challenge, Ben Fredj H., *et al*. had noted in their study 85.71% of painful sequelae [25]. Weinstein., *et al*. has ux United States had noted that patients with symptomatic otology who played more than 6 months responded poorly to surgery with postoperative pain sequelae [26]. Postoperative fibrosis is believed to be the cause of these painful sequelae.

Conclusion

The herniated disc remains a public health problem. It should be con born this disease entity to better take care of. It carries a painful syndrome characterized by an e component e spinal do and root resulting from compression of the nerve roots. The chronic nature of this disease entity entails a cost socio-economic importance with the effects on the social, psychological, and professional. The herniated disc most often affects women in their fifties. The lumbaradiculalgia is the classic mode of expression of the latter. L4-L5 herniated disc was the most common (59.34%). The severity of the paralysis warranted emergency surgery. Cross- sectional medical imaging occupies a preponderant place in the diagnosis of lumbar disc herniation. This is essentially the myelography and scanner in our context, the more powerful MRI is not available in our context. The e medical treatment remains to this day one of first line. Surgery only intervenes in the event of failure of the well-conducted medical treatment or in front of "Red flag" warning signs. Despite the progress of "Micro discectomy" surgery, painful sequelae remain a major problem probably linked to post-surgical fibrosis. Nowadays advances in the field of physical medicine and re-education Functional give a glimmer of hope in the therapeutic arsenal for the treatment of painful consequences.

Conflict of Interest

The authors declare that they have no conflict of interest.

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