

EPIDEMIOLOGICAL, CLINICAL AND THERAPEUTIC PROFILE OF SURGICAL PATHOLOGIES OF THE CERVICAL SPINE AT THE LAQUINTINIE HOSPITAL IN DOUALA

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Annotation: The cervical spine can be the site of several lesions (traumatic, degenerative, tumoral, infectious, inflammatory or congenital). These pathologies are serious because of the neurological complications they cause. Their diagnosis is clinical, radiological and sometimes anatomopathological. The treatment of severe forms is surgical. These pathologies can be life-threatening, functional with some repercussions on society. The aim of our study was to describe the epidemiological, clinical and therapeutic profile of surgical pathologies of the cervical spine at the Laquintinie Hospital in Douala.

This is a cross-sectional study with retrospective enrolment from January 2010 to June 2016 and prospective enrolment from July 2016 to August 2016, a period of 6 years and 6 months at the Laquintinie Hospital in Douala, with 49 patients operated during the retrospective phase and 6 patients during the prospective phase, i.e. 55 patients aged 11 to 69 years with an average age of 40 years, 89.1% were male patients and 19.1% female patients, representing 10% of neurosurgery operations and 34% of all spine operations. 95.7% of patients were admitted by non-medical means and 5.3% by medical means. The aetiology was traumatic (85.5%) with 74.5% following a stroke, degenerative (7.3%), tumorous (5.5%) and infectious (1.8%). The reason for consultation was more marked by neck pain (37.5%) and the functional impotency of the limbs in 25%; the mode of onset was progressive (87.5%) and slow (12.5%); the symptomatology is more marked by neck pain (97.9%) and torticollis (16.4%); neurological signs (93.6%) are dominated by pain on mobilisation (83.6%) and central hyperthermia (45.5%). Stage A of the FRANKEL classification was the most frequent (32.7%) and head trauma (19.1%) was the most associated trauma. CT scans were performed in 85.5% of patients. The lesion was located in the C6C7 segment (27.3%) and was a fracture-luxation. The operating time was 16.8 days [5.3-28.3]. Osteosynthesis (25.5%) by anterior approach without scopy was the most used surgical technique with 25.5% of patients. In the short term, there were 5 revision surgeries (9%) and 5 infectious complications (9%). The average postoperative hospital stay was 12.6 days. Postoperative death was 18.2%. In the long term, postoperative satisfaction was good at 95.7%.

Pathologies of the cervical spine are dominated by trauma and concern the young subject. The clinic is dominated by incomplete spinal cord injuries. CT scans are mainly used. Osteosynthesis is the main therapeutic modality. Postoperative complications are rare and long-term postoperative results are satisfactory.

Key words: Cervical spine, epidemiology, therapy, Laquintinie Hospital, Douala.

Introduction

The cervical spine is the first portion of the spine. It is followed by the thoracic, lumbar, sacral and coccygeal spines. It is an anatomically poorly protected and highly mobile region, and can be exposed to pathologies: traumatic, tumoral, infectious, degenerative, rheumatic or inflammatory, congenital and iatrogenic (AANS, 2016). These pathologies are serious because of the neurological consequences they cause, thus putting at risk the vital and functional prognosis of the patient (1). Lesions of the cervical spine can lead to cervical medullary lesions with damage to its nerve centres, which can be responsible for partial or complete neurological deficits, rendering the patient handicapped (3).

Cervical spine surgery accounts for 33% of all spine surgeries (1). Traumatic pathology (43-55%) is the leading cause,(1,3) followed by degenerative pathology (26%), infectious pathology, tumour pathology and congenital pathology (1),

Traumatic spine surgery is generally performed on men with an average age of 37 years, whereas non-traumatic spine surgery is performed on men with an average age of 52 years (4); the most affected segment in trauma was the sixth and seventh cervical vertebrae (C6/C7) and that of degenerative conditions is more at the C5C6 level. Patients can present complete spinal cord injuries (75.8%) and incomplete spinal cord injuries; the anterior surgical approach is the most used (3,4,5) in traumatic pathology while in degenerative pathology, vertebral decompression by posterior approach is the preferred route. Recovery after treatment depended on the initial Fränkel stage (6).

Our work allows us to make an epidemiological, clinical and therapeutic study of patients treated surgically at the Laquintinie Hospital in Douala for cervical spine pathologies.

Our work has the particularity of determining the epidemiological, clinical and therapeutic profile of surgical pathologies of the cervical spine at the Laquintinie Hospital in Douala.

Materials and Methods:

This is a cross-sectional study with retrospective enrolment from January 2010 to June 2016 and prospective enrolment from June 2016 to August 2016, which took place at the Laquintinie Hospital in Douala (HLD) over a period of 6 years, involving the records of 54 patients operated on for pathology of the cervical spine; the study took place over a period of 10 months from January to October 2016.

We referred to "the operating room registers, the completion files of the hospitalized patients during the study period: All the files of patients operated on at the LHD from January 2010 to December 2015 having a complete file and those operated on from January 2016 to June 2016 having a complete file and having obtained free and informed consent were included in the study.

Excluded from the study were patients with incomplete or untraceable records; patients with surgical cervical lesions who did not undergo surgery; and those who did not give informed consent.

Each file was reviewed for identity, age, occupation of the patient, time of admission, clinical signs, clinical forms, time of surgery, type of surgery, postoperative duration, intra- and postoperative complications and patient outcome.

All osteo-disco ligamentary or medullary lesions requiring surgery are considered as operated cervical pathologies.

RESULT

The 55 patients operated on the cervical spine constituted about 10% of the patients operated on in neurosurgery and 34% of the patients operated on the spine in our series.

The age of the patients varies from 11 to 69 years with an average of 40 years of which 34.5% are between 31 and 40 years of age and 96.6% of the patients are between 21 and 60 years of age.

Men represented 89.1% of the patients and women 10.9%. The sex ratio was 8:1. Of these patients, 27.3% were single, 70.9% married and 1.8% divorced.

The patients came from the Far North (1.8%), the North (9.1%), Adamaoua (1.8%), the West (52.3%), the South-West (1.9%), the Littoral (21.8%), the South (1.8%), the Centre (7.3%) and foreign origin (1.8%). The other regions (North West and South) were not found.

The patients were 49.1% manual worker, 9.1% shopkeeper, 7.3% office worker, 5.6% driver, 5.5% student and 5.5% unemployed.

The patients resided in urban areas in 81.8% of cases and 18.2% in rural areas.

Cervical spinal pathologies were traumatic (85.5%), degenerative (7.2%), tumourous (5.5%) and infectious (1.8%); no cases of congenital and iatrogenic pathologies were found.

95.7% of trauma patients were admitted to the emergency room by non-medical means and 4.3% by medical means. 87.2% were received in the emergency room after having been referred to a health facility; 10.6% of patients were received directly in the emergency room without referral and 2.2% were received in the outpatient after visiting another clinic. They were admitted within 24 hours in 48.9% of cases, between 24 and 48 hours in 42.6% and over 48 hours in 8.5% of cases.

The trauma was caused by road accidents (64%), work accident (11%), domestic accident (8.5%), or sports accident (2%).

The mechanism of injury was sudden acceleration or hyperflexion (56.3%), sudden deceleration or hyper extension (25.2%) and compression (4%).

Non-traumatic pathologies (15%) were discovered during the consultations by neck pain such as torticollis (5%), cervicobrachialgia (4%), tetraparesis (4%) and brachialgia (2%). The mode of onset was progressive in 12.7% and slow in 1.8% (Table 1).

Table 1 Types of injuries and reasons for consultation

Type of injury	Reasons for consultation	workforce	%	total workforce	%
trauma	AVP (road accident)	35	63%	47	85%
	Accident at work	6	11%		
	Domestic accident	5	9%		
	Sports accident	1	2%		
non-traumatic	neck pain or torticollis	3	5%	8	15%
	cervicobrachialgia (neck pain)	2	4%		
	functional impotence or heaviness in all four limbs	2	4%		
	brachialgia	1	2%		
Total		55	100%	55	100%

At the entrance of the examination of the patients ;

Functional signs were marked by neck pain in 37.5% of patients, cervicobrachialgia in 25%, brachialgia in 12.5% and functional impotence with tetraparesis in 25% of cases.

General condition was preserved in 63.6% of cases and impaired in 36.4%.

The physical signs were marked by a torticollis attitude in 16.4% of patients and hyperthermia of malignant origin in 45.5% of patients.

The patients were clinically classified as Fränkel A (34%), Fränkel B (15%), Fränkel C (11%), Frankel D (31%) and Frankel E (9%) (Table 2)

Table 2: Fränkel classification of lesions

Classification	staff	%
FRANKEL A	19	34
FRANKEL B	8	15
FRANKEL C	6	11
FRANKEL D	17	31
FRANKEL E	5	9
TOTAL	55	100

Several injuries were associated with the cervical trauma: head trauma (19.1%), upper limb trauma (10.6%), thoracic trauma (6.4%), other spinal trauma (4.3%), lower limb trauma (4.3%). No abdominal or pelvic trauma was found in our series.

CT was the most common diagnostic modality used (85.5%) followed by standard frontal (36.4%) and lateral (34.5%) radiography. Magnetic resonance imaging was used in 27.3% of cases for the diagnosis of neurological deficits not elucidated by standard radiography or CT scan.

The most affected lesion level was C6C7 (27.3%) followed by C5C6 (23.6%).

The lesion level reached was: C1 (1.8%), C1C2 (1.8%), C2(3.6%), C2C3 (7.3%), C3(3.6%=, C3C4 (20%), C4(1.8%), C4C5 (5.5%), C5C6(23.6%), C6(1,

8%), C6C7 (27.3%) and C7(1.8%). We did not find any C5 involvement (Table 3).

Table 3: Anatomical location of lesions

Lesion level	Staff	%
C1C2	1	1,8
C2	2	3,6
c32c3	4	7,3
C3	2	3,6
C3C4	11	20
C4	1	1,8
C4C5	3	5,5
C5	0	0
C5C6	14	25,5
C6	1	1,8
C6C7	15	27,3
C7	1	1,8
	55	100

Traumatic injuries (84.5%) consisted of dislocation bills (41.1%), dislocations (14.5%), compression bills (7.3%), comminuted fractures (7.3%), posttraumatic disc herniation (7.3%) and Haggmann-type fracture of the odontoid (1.8%).

The non-traumatic lesions (14.5%) consisted of cervical myelopathy (5.5%), herniated disc (1.8%), lymphoma (1.8%), prostatic ADK metastasis (1.8%), neurofibromatosis (1.8%), and cervical pain (1.8%) (Table 4)

Table 4: Etiology of lesions

Nature of the injury		Type of injury	staff	%	
Non-traumatic conditions	degenerative disease	cervicarthrosis myelopathy	3	5,5	7,3
		herniated disc (soft disc herniation)	1	1,8	
	Tumor	Lymphoma	1	1,8	7,3
		prostate ADK metastasis	1	1,8	
		Neurofibromatosis	1	1,8	
		neck pain	1	1,8	
	infection				1,8
Traumatic conditions		Haggmann-type fracture	1	1,8	84,4
		odontoid fracture	3	5,5	
		settling invoices	4	7,3	
		commutative fractures	4	7,3	
		post-traumatic disc herniation	4	7,3	
		dislocations	8	14,5	
		invoice dislocation	23	41,8	
		55	100	100	

All patients were treated orthopedically by wearing a cervical collar as soon as a cervical injury was suspected at entry. No patient was treated by orthopaedic treatment alone. Cervical traction was applied pending surgery in only one patient.

The time between the cervical trauma and the operation varied from 1 to 60 days with an average of 16.8 days, i.e. 17 days, of which 20% of the patients between 0-7 days, 32.7% between 8-14 days, 16.4% between 15-20 days, 16.4% between 21-30 days, 9% between 31-40 days and 3.6% between 41-60 days, i.e. 2 months.

The surgical treatment was either anterior (49%), posterior (47%) or posterolateral (4%).

Osteosynthesis (screw plate, transpedicular screws or linkage) was performed in 25.5% of patients, decompression (discectomy or laminectomy) in 21.8%, decompression combined with osteosynthesis in 7.3%; decompression associated with arthrodesis (iliac graft) in 9.1%, osteosynthesis associated with arthrodesis in 10.9%, decompression associated with osteosynthesis and arthrodesis in 10.9%, corporectomy associated with osteosynthesis in 1.8%, medullary decompression associated with corporectomy and osteosynthesis in 1 case, corporectomy and lumpectomy associated with arthrodesis in 1 case, decompression associated with biopsy 1 case, and osteosynthesis associated with biopsy 1 case.

Table 5: Distribution of patients according to the surgical procedure performed

Surgical technique	staff	%
Spondylodese not lançage	14	25,5
Iliac graft and spondylodesis corporectomy	11	20

Decompressive Laminectomy	12	21,8
Iliac graft diskectomy and spondylodesis	15	27,3
corporectomy, tumeretomy and arthodesis	1	1,8
decompression and biopsy	1	1,8
osteosynthesis and biopsy	1	1,8
TOTAL	55	100

The average postoperative hospital stay was 12.6 days. The extremes ranged from 1 to 45 days or 1.5 months.

78.2% of patients had no complications, while surgical complications were described in 21.8%. Intraoperative complications in the posterior approach due to vertebral artery injury were described in 2 patients (3.6%). Complications in the posterior approach with spinal cord compression due to graft revision (3.6%) and repositioning of the screw and graft (9.5%) were described, the surgery being performed without scopy.

Postoperative infectious complications were noted in 7.4% and one patient died immediately postoperatively after respiratory distress. (Table 6)

Table 6: Post-operative complications

COMPLICATIONS		Anterior approach	Posterior approach	Postero-lateral approach	TOTAL	%
Intraoperative complications	Vascular trauma (spinal injury)	0	1	0	1	1,8
Immediate postoperative complications	Spinal cord compression by the graft	1	1		2	3,6
	Rework for graft and screw position	5	0	0	5	9,1
	Respiratory distress	0	1	0	1	1,8
	Infectious Complications	1	2	0	3	5,5
	Vascular trauma (spinal wound and postoperative infection)	0	0	1	1	1,8
Total complication		7	5	1	13	21,8
% Completions		12, 7%	9,1%	1,8		23,6
No complications		20	21	1		42
No complications		36,4	18,2	1,8		76,4
Total		27	26	2	55	

The patients were called after a minimum of 2 months and a maximum of 6.5 years and had a level of satisfaction with the operation of excellent in 47.8%, satisfied in 43.5% and neither satisfied nor disappointed in 8.7%. There was no deterioration in condition or a very great deterioration. Furthermore, patients would definitely recommend surgery to their relatives for the same conditions in 87% and probably in 13%. There were no unsatisfied or very unsatisfied patients.

Of the 55 patients in our series, we noted 10 cases (18.2%) with 05 cases (10.1%) of death within 0 to 7 days post-op, 04 (7.3%) of death within 8 to 14 days and 01 death between 31 to 40 days post-op.

9 (16.4%) deaths were observed in Fränkel stage A, i.e. 50% of all patients classified as Fränkel A, and one case of death in stage D

Discussion

The cervical spine can be the site of several pathologies affecting the spinal cord and the paravertebral disco-muscular ligament system with neurological consequences that can lead to a vital and functional prognosis(1). The mortality rate due to the spine is estimated at 16%(2). These pathologies can be surgical or medical,

In our study, surgical pathologies of the cervical spine constituted about 10% of the patients operated on in neurosurgery and 34% of the patients operated on in the whole spine, this rate is similar to the study carried out by Kigera (1) which describes that surgery of the cervical spine represented 33% of the cases of all spinal surgery. This rate is lower than Kamal's work on orthopaedic spine surgery which constitutes 51.8% of all spine surgery (7).

In our studies, traumatic pathologies are described in 85.5% of patients and non-traumatic pathologies in 14.5% (7.3% degenerative pathology, 5.5% tumour pathology and 1.8% infectious pathology), whereas in the work of Kigera, traumatic pathologies represent 43% and non-traumatic pathology represents 57%, with 26% degenerative pathologies(1). Another study carried out in Nigeria by Iruo et al. Another study conducted over one year in Nigeria by Iruo et al. on the entire spine showed that degenerative pathology represented 83% and traumatic pathology 14%(8). This difference could be explained by the fact that this study was conducted in a private hospital where the cost of care is very high for trauma patients who have to be treated as emergencies, probably because of the low socio-economic status of the study population, and also because private hospitals are not the first places of referral for trauma emergencies patients

The average age of the patients in our series was 40 years with extremes ranging from 17 to 69 years. The most represented age group was 31 to 40 years (34.5%). These results are similar to those obtained by Kigera where the average age was 37.2 years, traumatic pathology was the most representative and concerned young adults(1). However, these results differ from those obtained by Iruo et al in a similar study where the average age was 54 years (8). This difference can be explained by the fact that in the latter study, degenerative pathology was the prerogative of older subjects.

The predominance of males was 89.1% and females 19.9%, which appears to be higher than that obtained by Kigera in a similar study but where the predominance of males was only 60.8%(1). This difference can be explained by the fact that the cervical spine is more exposed to traumatic pathologies, which mainly concern males, whereas degenerative pathology is more prevalent in older subjects. This result is therefore similar to those of Uche et al (3), Moghalu et al (11), Frielingsdorf et al (10), Yiltok et al (11) which focus exclusively on cervical spine trauma. This can be explained by the fact that the Laquintinie Hospital is the receptacle of trauma in the city of Douala.

49.1% of our patients were manual workers (farmers, mechanics, technicians). Indeed, in these workers the cervical spine is more solicited and consequently more exposed to traumatic and degenerative injuries.

Cervical spine injuries were mainly due to road traffic accidents (74.5%) and hyperflexion (66%) which is in line with studies conducted in Africa, such as those of Moghalu et al, Motah et al, Eyichukwu et al. who found respectively a predominance of road traffic accidents at 60%, 58.1% and 66.7% in their work (9,12,13).

95.7% of patients were transported to hospital by non-medical means. 87.2% were mainly referred from small hospitals. The transfer time was 24 to 48 hours (91.5%) after the onset of the condition. This result is close to those obtained by Beyiha et al (14) who describe that 90% of patients were secondary transfers after passing through facilities not suitable for the management of spinal injuries with 30% of trauma

patients arriving within 24 hours. This differs little from the work of Kamal et al (15) on the cervical spine, who found that only 80.1% of patients were transported by non-medical means: 56.6% by taxi, 13.3% by bus, 10% by tricycle, 2/30 (6.6%) came on foot, and only 13.3% were transported by ambulance. These results differ from the work of Motah et al(12), who found that (58.1%) were transported by town taxi, and 67.7% were transported initially to the nearest hospital, and secondarily to a neurosurgical centre. These results can be explained either by the general population's lack of knowledge or ignorance of certain medical personnel of the methods of collection, or by the unavailability of an emergency regulation centre and by the poverty and absence of a health insurance system in Cameroon.

The non-traumatic pathologies consisted of: degenerative pathologies 5.5% (03/55), cervical osteoarthritis 1.8% (01 case), one case of cervical disc herniation, tumoral pathologies 5.5% (03 cases) and one case of infectious pathology (Pott's disease). This result is close to the work of Iruo et al (8) who found degenerative pathologies of the spine in 1/43 cases, metastasis of prostate tumour and 1/43 cases of tuberculosis, as well as in the work of Djiencheu et al (6) on Pott's disease, noting 8.7% (2/23) of cervical pain. The location of metastases of prostate cancer was noted in 1/55 patients, this cervical location of metastasis was also described in the work of Eleraky et al (16) on 7 cases of cancers other than prostate cancer. In our study we had one case of lymphoma and neurofibromatosis. The work of Eyenga et al described cases of neurofibromatosis, but at the dorsal level and not at the cervical level as in our work, (17)

Non-traumatic pathologies manifested themselves progressively in 87.5% and abruptly in 12.5%; pain was unilateral in 62.5% and bilateral in 37.5%. These results are superimposed on those obtained by Milliga j et al who described a progressive onset of up to 2 years(18).

In our work 32.7% of patients had a complete deficit, 58.2% had an incomplete deficit and 9.1% had no deficit at all. This data is almost different from the work of Frielingsdorf et al who described in their work on spinal cord injury 35.7% of complete spinal cord injuries, 46.4% of complete injuries and 17.9% of cases with no spinal cord injury(10).

The traumas most associated with cervical spine injuries were: head trauma in 19.1% of patients, upper limb trauma (10.6%), thorax trauma (6.4%), spinal trauma (4.3%) and lower limb trauma (4.3%). Frielingsdorf et al in their work find 71.4% have associated injuries, with facial lacerations and head trauma being the most common(10), Clayton et al (19) in their work on risk factors for cervical spine injuries attest that neither facial fracture nor head trauma alone can increase this risk, but more specifically the significant interactions between pelvic fracture, fall and associated head trauma. The associated injuries determine the prognosis of the head injury management.

CT was the most common diagnostic modality (85.5%), followed by frontal (36.4%) and lateral (34.5%) radiography. Magnetic resonance imaging was used in 27.3% of cases for the diagnosis of neurological deficits not elucidated by X-ray or CT scan. Imaging is essential and there is a choice between standard radiography and helical CT. CT has a better sensitivity than standard X-rays in detecting cervical fractures and dislocations. These two diagnostic modalities are the most used in cervical trauma as shown by the work of Robert et al. in France, ELOUNDOU et al. in Cameroon and HOUNDENOU et al. in Morocco where standard radiography and CT were the two most used diagnostic modalities (20, 21, 22). Indeed, if standard and dynamic medically assisted radiographs show traumatic lesions, the CT scan is often requested in addition to support the lesions and allow an exhaustive assessment before the therapeutic decision. If both X-rays and CT scans are normal with a patient showing neurological signs, MRI is indicated as an emergency. In this case, and without delay, an MRI is performed. Careful handling is required, with the patient unrestrained and placed in a cervical spine. The protocol includes sagittal slices studying the entire spinal cord in fast T1 and T2 spin echo, and axial T2 slices centred on the pathological level (23).

The most affected lesion level was C6C7 in 27.3% followed by C5C6 in 23.6%. This result is similar to that of EYICHUKWU G.O. et al (9) where lesions dominate at C6C7 in 27.3% and at C5 in 16.7%; the same is true of the work of ELOUNDOU et al (20) noting the predominance of disco-ligamentary lesions (44.5%) with a preferential location at C5C6 and C6C7. This differs from those of EO Uche et al (3) who found a predilection level at C5 in 38% of patients. Despite these small differences, the C5C6 regions are highly solicited in cervical movements.

All patients had received a cervical collar upon suspicion of cervical injury on admission to hospital. The median time to surgery was 16.8 days [5.3-28.3], with extremes ranging from 1 to 60 days or 2 months. 32.7% of patients were operated on within 8-15 days. These results are similar to those found by Kigera, where the time taken to treat was 22 days(1). However, it is still high compared to a study by Clayton which revealed that the average length of hospitalisation (operating time and postoperative time) was 9.6 days (19). This difference would be linked to the economic difficulties and cultural beliefs of patients in our context

The surgical approaches were anterior (49%), posterior (47%) and posterolateral (4%), which differs from those of Hamid Rezaee et al (24) who described in their series, 45.8% anterior approach, 18.1% posterior approach and 15.3% combined approach, no case of posterolateral approach. This result differs from the work on cervical myelopathy of Djabairou B et al where the posterior approach was described in 47.40% of patients. The anterior approach is more suitable for non-traumatic spinal injuries, the posterior approach is more suitable for degenerative diseases (4, 22, 25).

Different surgical techniques were used, with osteosynthesis (instrumentation) being the most commonly used in 25.5% of patients followed by decompression (discectomy or laminectomy) in 21.2% of patients. This result is similar to those of Kigera, et al(1) and Houndenou(22) where osteosynthesis was most used in the cervical spine.

- Complications were found in 22.2% of patients, with a predominance of repositioning of the graft and the screw in 9.1% (5/55) and postoperative infection in 7.3% (4/55). 78.2% of patients had no complications, whereas A. Iruo et al. in their series found 87% of patients without any complication, this difference being due to the absence of scopic surveillance during pedicle aiming, in our technique where pedicle location is anatomical (22).
- Of the 55 patients in our series, we noted 10 cases of postoperative death, which represents a mortality rate of 18.2%. This result is higher than that obtained by Iruo et al (10.4%) on a similar study but involving the whole spine, but is similar to the result of the study by Motah et al in Cameroon (18.4%) on cervical spine trauma (8,13).

16.34% (9/55) deaths were observed in Frankel A stage or 50% (9/18) of all patients classified as Frankel A, and one case of death in stage D. This result is similar to that of Eloundou et al. in Cameroon where the death rate was 47.1% for Frankel A stage (20). The study by Uche et al. also revealed that the majority of patients who died were Frankel A, i.e. 72.2% of patients (3).

There were five deaths between 0 and 7 days after surgery, four deaths between 8 and 14 days and one death between 31 and 40 days. This can be explained either by site, degree of injury or postoperative complications.

The average postoperative hospital stay was 12.6 days with extremes ranging from 1 to 45 days. This result is lower than that of Kigera (29 days) due to the length of rehabilitation that was associated with their study (1), but is slightly higher than that obtained by Clayton et al (9.6 days) in a study conducted in the USA (19).

Patients were called after a minimum of 2 months and a maximum of 6.5 years. We had an excellent to good level of satisfaction in 91.3% of cases. This rate is close to that obtained by Iruo et al. which was 87% (8). These results are similar to those described in the work of Djoubairou B et al, Eloundou NJ (25,20).

Conclusion

Cervical spine surgery is frequent in neurosurgery, Traumatic pathology is the most frequent followed by degenerative pathology, Traumatic pathologies affect young adults between 31-40 years with a male preponderance, Public road accidents are the most frequent etiology of cervical spine trauma, The mode of occurrence of non-traumatic pathologies is progressive, the clinical picture of cervical lesions is dominated by incomplete neurological lesions compared to the complete forms. CT is the most used diagnostic modality, the most affected segment is C6C7 in these lesions, the anterior approach is the most used with preferential osteosynthesis, the complications can be per and immediate postoperative, the operative results are mostly satisfactory

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