

CHALLENGES IN SPINAL CARE IN SUB-SAHARAN AFRICA (SSA)

Dr. John r. Ouma fcs (sa)

Department of Neurosurgery, University of the Witwatersrand, Johannesburg and Chris Hani Baragwanath academic hospital,

***Corresponding Author:** John r. ouma, Department of Neurosurgery, University of the Witwatersrand, Johannesburg and Chris Hani Baragwanath academic hospital.

Received date: March 06,2018; Accepted date : March 30,2018; Published date: April 06, 2018.

Citations : John r. Ouma, challenges in spinal care in sub-Saharan Africa (ssa) , J Neuroscience and Neurological Surgery.

Doi: 10.31579/2578-8868/006

Copyright : © 2018 John r. Ouma fcs. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Spinal conditions are commonplace in the developing world, and Sub-saharan Africa (SSA) is no exception. Traumatic conditions of the spine occur regularly, and when they do, they usually demand a level of urgency in diagnosis and treatment, not to mention skill on the part of the treating doctors. Tuberculosis of the spine as well as tumours and degenerative conditions are also big players in this arena.

Spine care is complicated by fact that spine instrumentation is technology and cost intensive, which does not sit well with many third world countries.

All these factors taken together create a hostile environment which leads to outcomes far from ideal for the spinal patient.

OBJECTIVES

To describe the presentation and management of four patients from SSA countries presenting with spinal problems whose management illustrates some of the problems referenced above.

METHODS

Discussion of four cases and review of the literature.

Introduction

It is common cause that the state of health care in SSA lags far behind that of the other continents.

There are several political, social, historical and economic reasons why this is so. Spine surgery is a complex area of medical practice. The requisite human resources, doctors and nurses tooled and resourced in spinal diagnosis and management, are few and very far between. The equipment requirements are demanding, expensive and not easily available. The SSA spinal patient finds himself immersed in this reality. Other than locales in the north and south of the continent, this applies to much of Africa. Spinal trauma is a common cause of patients presenting to neurosurgical units in these countries (1). In a study, Rabiou found this to be the case in a rural Nigerian tertiary hospital where trauma accounted for 68% of these patients (2).

This finding has been confirmed by other researchers, who have noted the prevalence of road traffic accidents as the main contributor to this scourge (3, 4). Lumbar disc conditions as well as degenerative lumbar stenosis have been found to be the commonest cause for non-trauma neurosurgical consultations in SSA (5).

Doctors at the forefront of providing spinal care in SSA face many challenges. These include delayed presentation of patients, missed diagnoses due to poor radiological support or inability of patients to afford investigations, non-availability or sheer cost of required implants, as well as lack of suitable personnel and hospital equipment (3, 6, 7). Yet where efforts are made, despite lack of resources, some benefit can be achieved (5, 8).

One aspect of spinal care in SSA that has not been highlighted sufficiently in the past is the challenges faced when patients are transferred abroad for management, either *de novo* or after an initial attempt at surgical treatment in the base country. This paper presents four such cases, each with a unique set of circumstances that highlight certain aspects of this problem.

Patient 1

This lady presented to a spinal centre complaining of neck pain and progressive onset of numb, clumsy hands. She also had oncoming stiff legs and gait disturbance.

An MRI scan did show radiological findings consistent with cervical spondylotic myelopathy at the C4/5 level (Figure 1).

Inexplicably, she was offered an anterior cervical plate from C6 to T1 (Figure 2) via a right sided approach. No intervertebral decompression was done at those levels and specifically not at the C3/4 level, where her pathology sat and therefore where treatment should have been rendered.

Unsurprisingly, she felt no better and sought further treatment in Johannesburg, where the pathologic level was addressed.

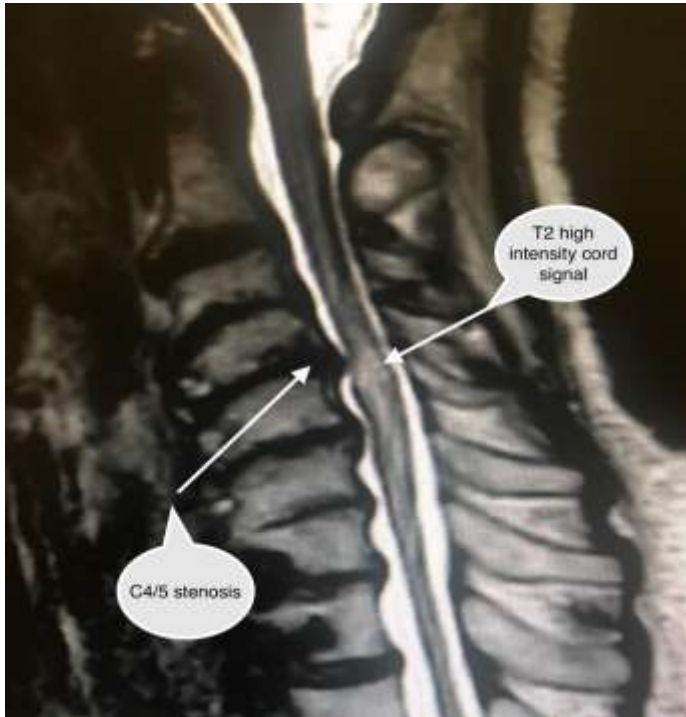


Figure 1: sagittal T2 MRI scan of the cervical spine showing that the most significant compression is at C4/5; this is associated with cord changes in the form of high T2 signal.



Figure 2: Lateral X ray showing the anterior cervical plate received by this patient, extending from C6 to T2 vertebra.

Patient 2

This patient presented with quadriparesis following a motor vehicle accident in which he sustained a bi-facet cervical dislocation at the C5/6 (Figure 3) level. Cones callipers were applied in an attempt at reduction; however, this was unsuccessful, not surprising seeing that the skin was lacerated at the application sites bilaterally (Figure 4), a tell-tale sign of improper calliper application. He was sent to Johannesburg three months later, the delay occasioned by financial and immigration issues, where a reduction and instrumented fusion were eventually done, with the expected degree of difficulty encountered in dealing with delayed facet dislocations.

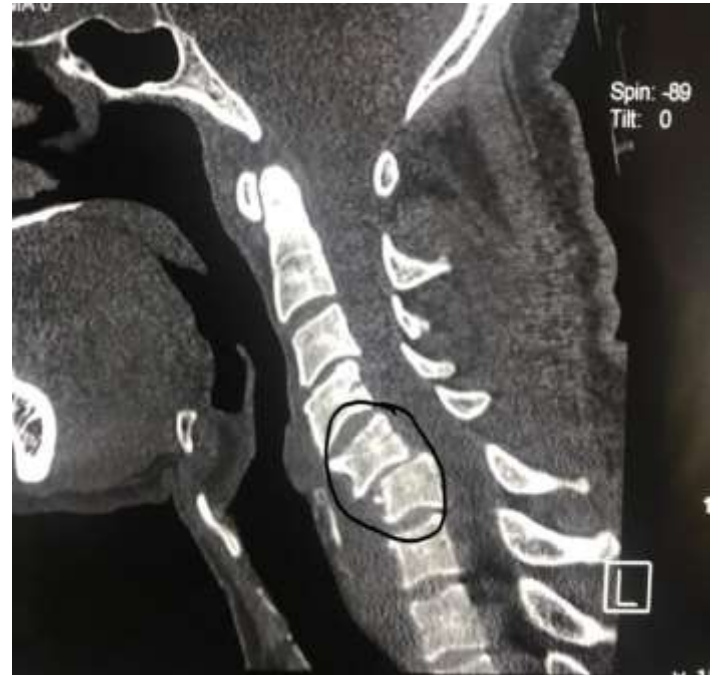


Figure 3: Sagittal CT scan of the cervical spine showing C5 on C6 anterolisthesis.



Figure 4: Tell-tale scalp lacerations from incorrectly applied Cones' calipers. The position of application is also too far posterior, hence the failure to reduce the bi-facet dislocation.

Patient 3

This patient was involved in a car accident some 11 years beforehand, and had always complained of neck pain right from the day of the accident. He had never been formally investigated till recently when he developed oncoming weakness of his hands and legs. A neglected fracture of C2 with anterior dislocation of the dens and severe stenosis of cervical cord was found (Figure 5). A posterior decompression and *in situ* occipito-cervical fusion was performed.

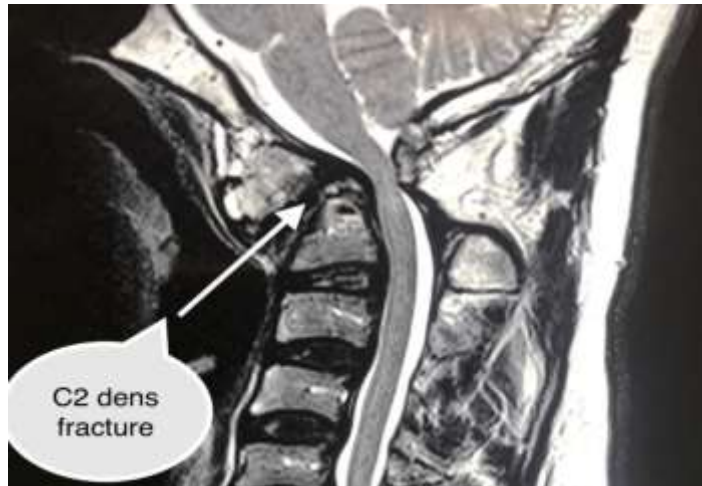


Figure 5: Sagittal MRI of the cervical spine showing severe stenosis at the C2 level with a neglected, displaced fracture of the odontoid process.

Patient 4

This patient was involved in a road traffic accident, developing severe neck pain directly thereafter. Scans showed a unifacet fracture dislocation and grade 1 anterolisthesis at C6/7. She was treated conservatively for a year, and then eventually had a unilateral lateral mass screw placed between C5 and C7, in addition to spinal wiring at C3/4 (Figure 6). The reason for the wiring was difficult to follow, and the lateral mass screws were problematic; they were placed unilaterally, there was no attempt at reduction, and the trajectory of the lower screw was unusual and potentially dangerous, in that the path of the vertebral artery was disregarded in placing it (Figure 7). The implants were removed and a decompression and fusion at the affected level was performed.

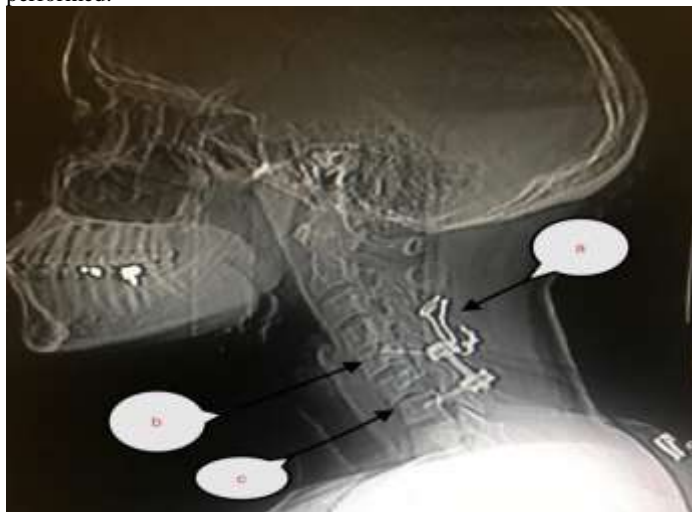


Figure 6: Lateral cervical spine X-ray showing final construct after treatment at her base hospital. Note the sublaminar wiring between C3 and C4 (a), and the lateral mass screws between C5 and C7 (b,c). Note the non-reduction of C6 on C7 (c).

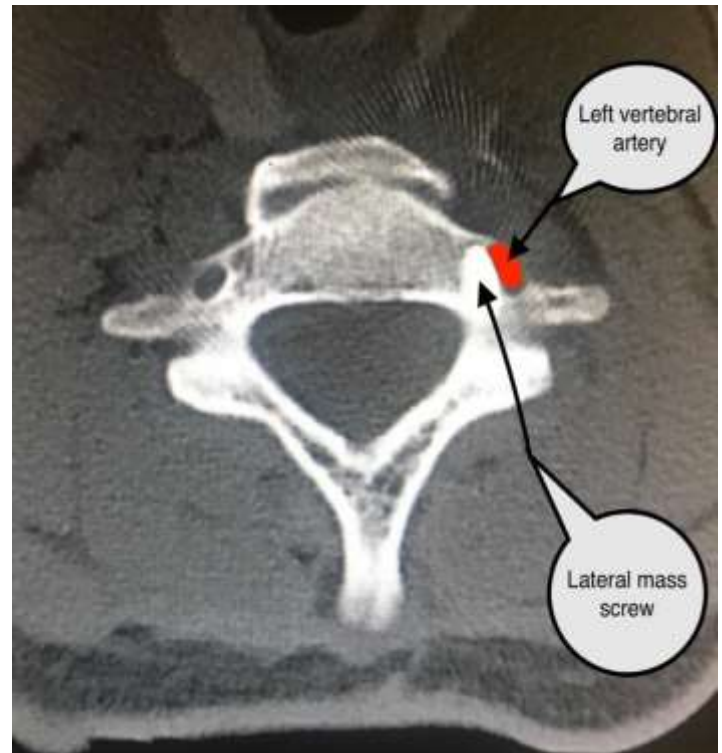


Figure 7: Note the left lateral mass screw at C7 travelling in a medial direction and just next to the ipsilateral vertebral artery. No screw has been applied on the opposite side.

Conclusions

These cases teach a number of lessons about the state of spine care in some parts of SSA, and, from personal experience, represent merely the tip of the iceberg.

1. The problem of missed diagnosis is indeed a reality, and needless suffering and inconvenience occurs because the correct tests were not, for one or other reason, obtained. In a trauma situation, a simple good quality X ray may be all that is required.
2. There are a number of individuals with some knowledge of and access to spinal implants. Clearly, this should be backed up by basic knowledge and understanding of proper spinal instrumentation principles. A situation where ill-thought out spinal interventions are carried out cannot contribute at all to a solution to this problem. It could be that these individuals would benefit from discussion platforms where images can be shared and discussed with colleagues elsewhere. These platforms are in common use on social media and elsewhere, and every attempt should be made to popularize them amongst spinal surgeons in SSA. There is, however, no substitute to correct training in the first place.
3. There should be greater understanding of the urgency of some of these conditions on the part of officials charged with approving visas. Three months delay is not appropriate at all when managing an acute injury. The difficulty of managing these cases increases exponentially with the time delay to definitive treatment.
4. The lack of human resource in spinal surgery in SSA will not be resolved any time soon. The paper by Park (5), training general surgeons in basic spinal care, is a worthy read and requires further discussion.

References

1. Lofvenmark I, Norrbrink C, Nilsson-Wikmar L, Hultling C, Chakandinakira S, Hasselberg M.(2015) Traumatic spinal cord injury in Botswana: characteristics, aetiology and mortality. *Spinal cord*. 53(2):150-4.
2. Rabiou TB, Komolafe EO.(2016) Neurosurgery in rural Nigeria: A prospective study. *Journal of neurosciences in rural practice*. 7(4):485-8.
3. Ametefe MK, Bankah PE, Yankey KP, Akoto H, Janney D, Dakurah TK.(2016) Spinal cord and spine trauma in a large teaching hospital in Ghana. *Spinal cord*. 54(12):1164-8.
4. Uche EO, Nwankwo OE, Okorie E, Nneziyanya I.(2015) Cervical spine injury: a ten-year multicenter analysis of evolution of care and risk factors for poor outcome in southeast Nigeria. *Nigerian journal of clinical practice*.18(2):203-8.
5. Park BE.(2016) Surgical Treatment of Degenerative Lumbar Spine Disease in Rural Sub-Saharan Africa: A Retrospective Study of 450 Cases and Its Future Implications. *World neurosurgery*.87:417-21.
6. Stewart BT, Gyedu A, Tansley G, Yeboah D, Amponsah-Manu F, Mock C, et al.(2016) Orthopaedic Trauma Care Capacity Assessment and Strategic Planning in Ghana: Mapping a Way Forward. *The Journal of bone and joint surgery American volume*.98(23):e104.
7. Nkusi AE, Muneza S, Hakizimana D, Nshuti S, Munyemana P.(2016) Missed or Delayed Cervical Spine or Spinal Cord Injuries Treated at a Tertiary Referral Hospital in Rwanda. *World neurosurgery*.87:269-76.
8. Lehre MA, Eriksen LM, Tirsit A, Bekele S, Petros S, Park KB, et al.(2015) Outcome in patients undergoing surgery for spinal injury in an Ethiopian hospital. *Journal of neurosurgery Spine*.23(6):772-9.