Revista de Ciencias Médicas de Pinar del Río

ISSN: 1561-3194 **RNPS:** 1877
Rev Ciencias Médicas. 2023; 27(2023): e5967

LETTER TO EDITOR

Subaxial cervical facet dislocations in the Cuban context: closed or open reduction?

Luxaciones facetarias cervicales subaxiales en el contexto cubano: ¿reducción cerrada o abierta?

Ernesto Enrique Horta Tamayo[1], Diana Rosa Ortega-Raez[2]

[1]Universidad de Ciencias Médicas de Holguín. Facultad de Ciencias Médicas "Mariana Grajales Coello". Hôpital de Référence de Maradi. Maradi. Niger.
[2]Universidad de Ciencias Médicas de Holguín. Facultad de Ciencias Médicas "Mariana Grajales Coello". Hospital Clínico- Quirúrgico "Lucía Iñiguez Landín". Holguín. Cuba.

Received: March 02, 2023
Accepted: April 01, 2023
Published: November 22, 2023

Citar como: Horta Tamayo EE, Ortega-Raez DR. Luxaciones facetarias cervicales subaxiales en el contexto cubano: ¿reducción cerrada o abierta?. Rev Ciencias Médicas [Internet]. Año [citado: fecha de acceso]; 27(2023): e5967. Disponible en: http://revcmpinar.sld.cu/index.php/publicaciones/article/view/5967

Mr. Editor:

Post-traumatic cervical dislocations are generally accompanied by neurological deficits, especially if they are bilateral. The most common site is the lower levels of the subaxial cervical spine. The goal of early decompression and reduction is to mitigate secondary injury, at the expense of increasing spinal canal diameters and decreasing edema, ischemia, and their inflammatory mediators. For this, the reduction methods, closed and open,(1) are proposed; the selection of one or the other is a controversial issue.

Closed reduction aims to return the canal to its anatomical dimensions, achieving normal alignment. Two requirements are accepted for its performance: pharmacological relaxation and an optimal state of consciousness of the patient, which allows communicative feedback with the surgeon.(1) If the reduction is late, it is often unsuccessful. As if there is no fracture of the joint capsules, or they are "blocked", which would require excessive weight.(2)

Closed reduction can fail in half of the cases, as shown by a meta-analysis published by Keppler et al.(3) that included 368 patients from 11 studies. In contrast, open reduction was achieved in almost 95 % of cases.

ISSN: 1561-3194 **RNPS:** 1877
Rev Ciencias Médicas. 2023; 27(2023): e5967

Regarding its safety, the incidence of permanent neurological complications is very low, generally 1 %.[2]

However, even after successfully achieving a closed reduction, the patient must receive surgery to stabilize the affected vertebral segment, which leads many to prefer its use just before surgery.[4] Another drawback with this proceed, is the need for clinical-radiological monitoring during its performance.[5]

Many researchers suggest obtaining MR images before closed reduction (single sagittal T2 sequence in order to reduce the time it takes),[2] which is accompanied by an added risk when mobilizing and delays in surgical treatment. The availability of performing this study is very limited in low-income countries.[4]

In 2018, the Spine Section of the German Society for Orthopedics and Trauma, recommended closed reduction by specialized personnel, under fluoroscopic control, as soon as possible. If it failed, he proposed to do an open reduction by anterior approach. In the case of initial selection of a posterior route, it is a requirement to obtain a prior MRI.[6]

Taking a similar position, in 2020, the World Federation Neurosurgical Societies Spine Committee recommended early closed reduction by traction, except if the patient is unconscious. If closed reduction fails, they suggest immediate open reduction.[2]

With respect to open reduction, there are two fundamental opinions: those who prefer it initially and those who perform it after the failure of closed reduction.[2] In neurologically intact patients, the first option is recommended.[6]

Subsequent to this step, the applicability of the anterior approach for surgical decompression is well accepted.[4] During this approach, Caspar's vertebral pins, or Cloward-type retractors, can be used to apply distraction forces and release locked facets in the most cases. Rarely may alignment not be achieved in this way. If so, a posterior approach would be necessary.[1,2,5]

Some authors have published that cases with incomplete motor lesions have shown a higher rate of success for closed reduction,[7] suggesting that patients with total motor deficit should receive initial surgical treatment.[2,7]

However, it is logical to infer that the greater the translation, the more spinal cord deformation and more neurological involvement. In addition, the time spent in the procedure to achieve correct alignment was not taken into account (from three to 10 minutes between each progressive increase in weight, starting with 4,5 kg up to a maximum of 60 kg),[5] therefore considering its low success rate compared to open reduction,[2] it may be a lost vital time.

There are no cohort studies in the region on the use of closed or open reduction techniques. Cuba does not escape this scenario. In our country, although there are spinal surgery centers in the 14 provinces and the special municipality, scientific reports on cervical fractures are scarce. Nevertheless, a rapid transfer of these patients to specialized centers, and stabilization and decompression surgery is carried out early (before the first 24-48 hours of the trauma) regardless of the degree of neurological injury (complete or incomplete). On the other hand, obtaining MR images in the context of a traumatic spinal cord injury is really anecdotal, typical of low-income countries.[4]

ISSN: 1561-3194 **RNPS:** 1877
Rev Ciencias Médicas. 2023; 27(2023): e5967

If we take into account the superiority shown by the anterior versus the posterior approach, in order to maintain alignment,[3] we consider that closed reduction would be objectively relegated, in our case, to pre-surgical use. However, in those exceptional situations where there is a delay in fixation surgery (availability of implants, associated injuries, etc.) would have an added value, allowing a restitution of space, until the patient receives the definitive surgical intervention.

BIBLIOGRAPHIC REFERENCES

1. Petrone B, Dowling TJ. Cervical Dislocation. En: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 [citado 20/03/2023]. Disponible en: http://www.ncbi.nlm.nih.gov/books/NBK557528/

2. Zileli M, Osorio-Fonseca E, Konovalov N, Cardenas-Jalabe C, Kaprovoy S, Mlyavykh S, et al. Early Management of Cervical Spine Trauma: WFNS Spine Committee Recommendations. Neurospine [Internet]. diciembre de 2020 [citado 24/02/2023];17(4): 710-22. Disponible en: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7788428/

3. Kepler CK, Vaccaro AR, Chen E, Patel AA, Ahn H, Nassr A, et al. Treatment of isolated cervical facet fractures: a systematic review. J Neurosurg Spine [Internet]. 1 de febrero de 2016 [citado 20/03/2023]; 24(2): 347-54. Disponible en: https://thejns.org/spine/view/journals/j-neurosurg-spine/24/2/article-p347.xml

4. Tamayo EH, González LCA, Ramayo AM. Reducción, estabilización interna y fusión por vía anterior en luxaciones cervicales subaxiales. MediCiego [Internet]. 14 de marzo de 2023 [citado 15/03/2023]; 28(1): e2867. Disponible en: https://revmediciego.sld.cu/index.php/mediciego/article/view/2867

5. Mubark I, Abouelela A, Hassan M, Genena A, Ashwood N, Mubark I, et al. Sub-Axial Cervical Facet Dislocation: A Review of Current Concepts. Cureus [Internet]. 8 de enero de 2021 [citado 20/03/2023]; 13(1): e12581. Disponible en: https://www.cureus.com/articles/49288-sub-axial-cervical-facet-dislocation-a-review-of-current-concepts

6. Schleicher P, Kobbe P, Kandziora F, Scholz M, Badke A, Brakopp F, et al. Treatment of Injuries to the Subaxial Cervical Spine: Recommendations of the Spine Section of the German Society for Orthopaedics and Trauma (DGOU). Glob Spine J [Internet]. septiembre de 2018 [citado 20/03/2023]; 8(2 Suppl): 25S-33S. Disponible en: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6130109/

7. Branche MJ, Ozturk AK, Ramayya AG, McShane BJ, Schuster JM. Neurologic Status on Presentation as Predictive Measurement in Success of Closed Reduction in Traumatic Cervical Facet Fractures. World Neurosurg [Internet]. 1 de junio de 2018 [citado 20/03/2023]; 114: e344-349. Disponible en: https://www.sciencedirect.com/science/article/pii/S187887501830456X

Conflict of interests
The authors have no conflict of interest.