

Management Of An Open Lisfranc Columno-Spalular Dislocation In A Poor Area: A Case Report And Observation At Orthopedics- Traumato Department Of National Hospital I.Deen

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Abstract

Open column-spatular dislocation is a rare pathology in our daily practices, the one associated to tendinous and arterial injuries on an amenorrhea is exceptional. The management is controversial. Careful debridement and reduction of the dislocation with pins are the technic of choice covered with appropriate prophylactic antibiotic therapy[O1] .

We are going to discuss about the mechanism, evaluate injuries and the management of this rare injury.

INTRODUCTION

LISFRANC's Fractures or Dislocations are rare injuries, their frequency is estimated at 1,7% among all midfoot injuries (1). Lisfranc's open dislocations happen after a high energy trauma, commonly during vehicles' collisions (2,3). They are rare and their annual incidence estimated a 1/500,000 patients (4).

The goal of this work was to present a rare open form one of columno-spatular of Lisfranc.

OBSERVATION:

A 23-year-old female with a 3 month history of amenorrhea was admitted in our surgical casualty from Matam (one of capital city quarter a 5 km to down town) around one hour after a collision between a motorcycle (carrying the lady) and a truck. She was projected from the motorcycle during the event and fell on the right leg first in forced and inverted equinus position.

At admission we found on clinical examination:

- An avulsion of 1st cuneiform retained solely by ligaments/ tendons, a fascio-cutaneous detachment from the inner malleoli to the lateral border of right foot, extensor of hallus tendon ruptured and pedal artery, and fascio-cutaneous detachment of antero-

intern face of 1/3 upper right leg exposing 4cm of tibia , the posterior tibial pulse was palpable, sensitivity and motricity were preserved on the toes except the big one) (figure 1)

- X ray of the right foot F/P showed a divergent columno-spatular dislocation with 1st cuneiform avulsion
- OBGYN examination concluded at a 14 weeks ultrasound monofetal pregnancy,
- Laboratory exams were unremarkable.

The patient was taken in the operating theatre 4 hours after the accident and under spinal anesthesia, we performed a copious debridement, reduced and MTT pinning with 2 Kirschner 15/10 (figure 2a), pedal artery repaired with 5/0 prolene with interrupted suturing, and extensor tendon repairing with prolene followed by skin closure with interrupted sutures.(figure 2b).

A debridement and skin approximating of fascio-cutaneous detachment of the right 1/3 upper leg.

She was submitted under IV antibiotics for 5 days postoperatively (ceftriaxone 1g qid), Lovenox 0,40mg s/c ONCE A DAY for 7days, Dolipran 1000mg in needed. The patient was given 1500 s/c tetanus antibody at admission. The wounds were healed at postoperative day 21.

She was ambulated at POD# 30, helped with a walker.

Spontaneous abortion was observed at postoperative day 35.

Pin removal was done under local anesthesia at 8 months after the procedure.

At the 12th month, was assessed, walked normal, no limps as shown on image stepping on (one leg) monopodal position (figure 3).

We used Kitaoka criteria to assess our patient and the result was judged as good. Those criteria are based on pain, functional, and alignment of front and back foot (see table I).

Figure 1

Showing an open dislocation with avulsion of the 1st cuneiform confirmed by the X-ray of the forefoot from the front; a section of the tendon of the extensor of the halux and the pedicular artery.



Figure 2

a) x-ray Check-up which shows a perfect reduction of the dislocation fixed by two kirschner pins; b) Showing the repair of lesions (artery, tendon and skin).



Figure 3

Showing the functional results in monopodal station with good stability of the foot without vasculo-nervous disorder.



Table 1

Score de Kitaoka.

Tab. I. — Score de Kitaoka	
1) DOULEUR	
Aucune	40 points
Minime, occasionnelle	30 points
Moderée, quotidienne	20 points
Sévère, presque toujours présente	0 point
2) FONCTION	
a) Limitation des activités :	
Pas de limitation	10 points
Pas de limitation des activités quotidiennes, limitation des activités de détente	7 points
Limitation des activités quotidiennes et de détente	4 points
Limitation sévère des activités quotidiennes et de détente avec nécessité d'une aide telles que des cannes, un cadre de marche voire un fauteuil roulant.	0 point
b) Distance maximale de marche	
> 1500 mètres	5 points
Entre 1000 et 1500 mètres	4 points
Entre 500 et 1000 mètres	2 points
< 500 mètres	0 point
c) Surfaces de marche	
Aucune difficulté quelle que soit la surface	5 points
Quelques difficultés sur terrain irrégulier, dans les escaliers, lors de la marche en descente, sur les échelles	3 points
Sévères difficultés sur terrain irrégulier, dans les escaliers, lors de la marche en descente, sur les échelles	0 point
d) Boiterie	
Aucune ou minime	8 points
Evidente	4 points
Marquée	0 point
e) Mobilité dans le plan sagittal (flexion-extension)	
Normal ou limitation minime (30° ou plus)	8 points
Limitation modérée (15°-29°)	4 points
Limitation sévère (< 15°)	0 point
f) Mobilité de l'arrière-pied (inversion-éversion)	
Normal ou limitation minime (75% à 100% de la normale)	6 points
Limitation modérée (25% à 74% de la normale)	3 points
Limitation sévère (< 25% de la normale)	0 point
g) Impression subjective de stabilité de la cheville	
Stable	8 points
Manifestement instable	0 point
3) ALIGNEMENT AVANT/ARRIERE-PIED	
Bon	10 points
Moyen	5 points
Mauvais	0 point

DISCUSSIONS

Open columno-spatular dislocation is an extremely rare pathology in our daily practice. In five years of practice, we have seen only 1 case in our department. We found that forced flexion of foot, while the front foot was blocked on the ground when the patient was ejected in front of with a forced valgus of front foot during her fall was the mechanism. Elsewhere, force adduction and flexion of front foot as mechanisms were described by Mulier T. et al. (4) in the literature. Open Lisfranc columno-spatular dislocations were described by many authors (2,3,5). Associated of open Lisfranc dislocations with tendon and arterial rupture on pregnancy have not yet described in the literature. Isolated Lisfranc dislocations were reported by some authors (6,7,8). There is no consensus in the management of Lisfranc dislocated fractures. Reduction by pinning was described by Mulier Tet al. (4). Open forms, after debridement, a reduction through Kirschner pinning remains consensual/common (9). The same therapeutic procedure has been used in our patient. We proceeded at a reduction of dislocation including the 1st cuneiform then pinning MTT/TMT with 2 Kirschner pins OF 15 /10th and pedal artery repairing with prolen 5/0 cleaning then ends with low

molecular weight heparin. The arterial (good repairing) patency was confirmed by feeling pedal arterial pulse on the distal segment. The hallux extensor was repaired in U shaped and skin closure with interrupted sutures. No complications were found 6 years after and the result judged as Good according to Kitaolka. On the other hand, the MTT/TMT pinning technic has been described by Mulier T. et al. (4).

The functional result/ or outcome depends mainly on the anatomic reduction (a good reduction between cuneiforms and the cuboid on one side and Metatarsal joints other side) as described by Renner K et al (10).

CONCLUSION

Columno-spatular dislocations is a rare pathology in our daily practices. The open form ones with associated vascular injuries on pregnancy are very uncommon/ exceptional.

The management of these associated injuries necessitates/ a team work or multidisciplinary team. The functional result depends on early management.

References

- 1 - Mehlhorn AT, Hagen Schmal, Legrand MA, Sudkamp NP, Strohn PC. Classification and outcome of Fracture-Dislocation of the Cuneiform bones. J foot and Ankle Surg. 2016; 55:1249-1255.
- 2 – Manasseh Niyhyananth, Boopalam P.R.J.V.C, TitusV.TK, Sundararaj GD, Lee V.N. Long-term outcome of high-energy open Lisfranc injuries: a retrospective study. J Trauma. 2011; 70:710-716.
- 3 – Wenquig Qu, Shuqin Ni, Zhenhai Wang, Yong Zhao, Shinin Zhong, Yiheng Cheng et al. Severe open Lisfranc injuries: one-stage operation through internal fixation associated with vacuum sealing drainage. J Orthop Surg and Resarch 2016; 11: 134.
- 4 – Mulier T, De Haan J, Vriesendorp P, Reynders P. The treatment of Lisfranc injuries : review of current literature. Eur J Trauma Emerg Surg. 2010 ; 3: 206-216
- 5 – Walla A, Abalo A, Lagnéblé A, Tsolenyanu S, Towoenzim T, Kombaté NK et al. Fracture-Dislocations of Lisfranc joint in Lomé Open J of Orthopedics 2016; 6:16-21.
- 6- Dolfi Herscovici Jr, Scaduto JM. Acute management of high-energy lisfranc injuries: A simple approach. Injury, Int. J. Care Injured 2018; 49: 420–424
- 7- Lievers WB, Frimenko RE, Crandall JR, Kent RW, Park JS. Age, sex, causal and injury patterns in tarsometatarsal dislocations: A literature review of over 2000 cases. The Foot 2012; 22:117– 124.
- 8- Michael P. Clare. Lisfranc injuries. Curr Rev Musculoskelet Med 2017; 10:81–85
- 9- Vohra R, Singh A, Singh KK, Sing I, Sing N, Bensal A. Management of open injuries of foot: current concept. J foot and Ankle Surg. 2016; 3 (1):28-40.
- 10- Renner K, McAlister JE, Galli MM, Hyer CF. Anatomic description of the naviculocuneiform articulation. The Journal of foot and Ankle Surgery, 2017; 56:19-21.

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