International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 2481-2485 www.ijprajournal.com ISSN: 2249-7781

Unusual drug schema of cuneiform bone pain treatment. Clinical case

George Bratulescu
University of Craiova, Faculty of Science, Calea Bucureşti 107i, Craiova, Romania

Submitted: 25-02-2023 Accepted: 06-03-2023

ABSTRACT
The article presents the recovery of a 56-year-old patient, the author of this article, who suffered a fracture of the intermediate cuneiform bone. The presumed fracture occurred in the left foot. The patient was not hospitalized, the leg was left free, and several types of drugs were used. Full recovery of the patient occurred after ten weeks.
Keywords: medial cuneiform fracture; drugs; non-displaced; X-ray; self-assessment score.

I. INTRODUCTION

The cuneiform bones are named after their feather-like shape. They are located posterior to the first three metatarsal bones and anterior to the navicular bone [1].

It is unusual for a cuneiform fracture to occur. Usually this is accompanied by fractures of the bones adjacent to the calf, such as Lisfranc dislocations. In the literature, isolated medial cuneiform fractures are very rare injury and fewer than ten isolated cuneiform fractures studies are published [2-9].

The most famous case was recent and refers to US President Joe Biden, who suffered hairline fractures of the intermediate and lateral cuneiform bones. The fracture happened while Joe Biden, a 77-year-old male, was playing with his dog [10].

The incidence of calf fractures depends on the age of the affected person. In addition, the frequency of fractures is different for the two sexes (Figure 1). Men are more susceptible to this injury than women [11].

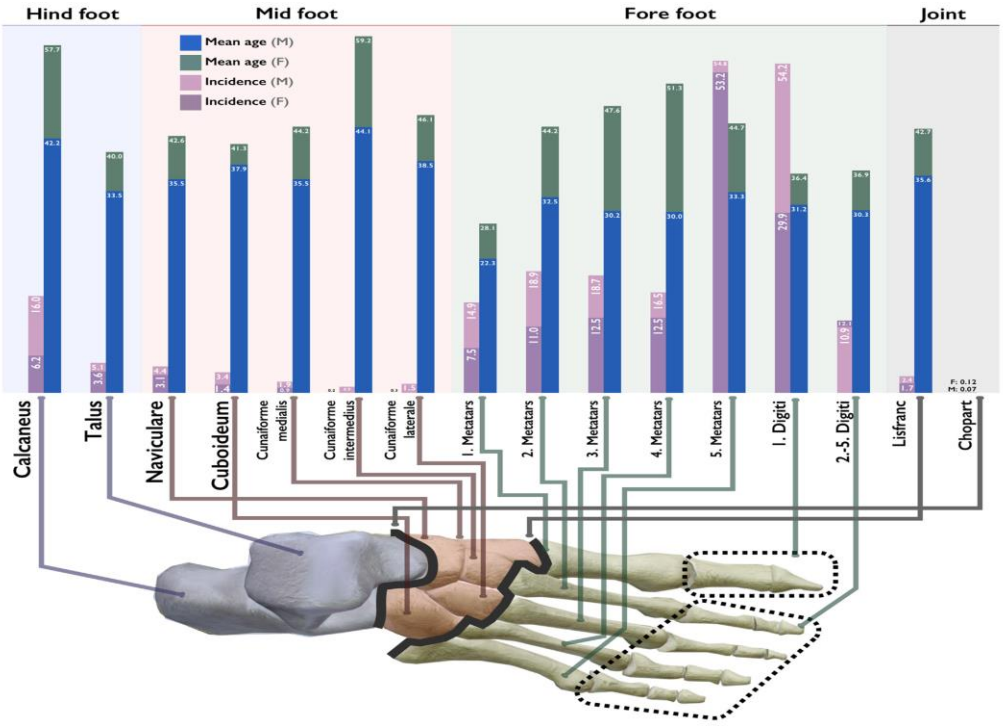


Figure 1. Incidence of calf fractures according to age and sex at different anatomical locations [11].

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 2481-2485 www.ijprajournal.com ISSN: 2249-7781

It is unusual for a cuneiform fracture to occur. Usually, this is accompanied by fractures of the bones adjacent to the calf, such as Lisfranc dislocations. Fewer than 10 isolated cuneiform fractures are documented and published in the literature, making this a very rare injury [2-9].

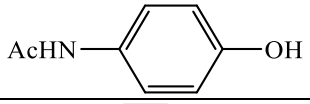
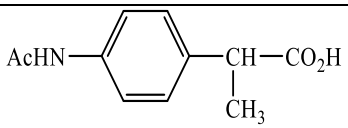
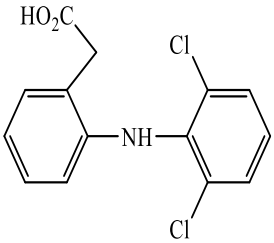
II. RESULTS AND DISCUSSION

The description of the event that led to the injury is presented below. A 56-year-old obese man slipped while walking. He tries to stabilize his balance position, but falls, and in the fall all his body weight (115 Kg and height 174 cm) is transferred to his left leg. The man has pain in the metacarpal and cuneiform bones of the left foot.

The sick patient manages to drive home using his own car by using his left foot on the clutch pedal and climbing the thirty stairs from the block where he lives to the third floor. Interestingly, going up the stairs is much easier to do without any support, while going down the stairs requires support with the left hand on the railing.

During the first two days, the pain in the left leg is great, and it is difficult for the patient to move around the house. The medical treatment used by the patient to alleviate the pain consisted of paracetamol, ibuprofen, and voltaren gel (Table 1). The pains begin to decrease in intensity.

Table 1. Drugs used before the presentation to the orthopedist. (Schema A)

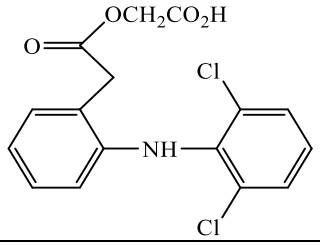
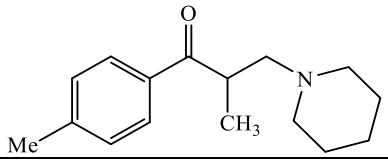
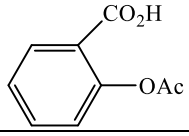
No	Drug name	Structure	Dose
1	Paracetamol 500 mg		1 q.d.
2	Ibuprofen 400 mg		1 q.d.
3	Voltaren gel		twice a day

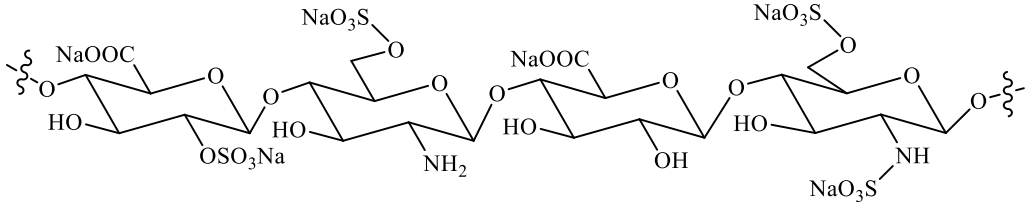
On the six day, the patient, having a swollen foot without ecchymosis, presents himself to the orthopedic surgeon. An X-ray of the left leg was performed (Figure 2). The physician's diagnosis was "suspected fracture of the medial cuneiform bone without dislocation". The patient is sent home with the following medications prescribed (Table 2): aceclofenac, mydocalm, aspenter, and hepathrombin. His treatment included also non-weight-bearing activity (NWB) and no immobilization.

Figure 2. (a) X-ray film of lesions (dorsoplantar view), (b) X-ray Film of lesions (oblique view).

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 2481-2485 www.ijprajournal.com ISSN: 2249-7781

Table 2. The orthopedist drug plan. (Schema B)

No	Drug name	Structure	Dose
4	Aceclofenac 100 mg		2 q.d.
5	Mydocalm 150 mg		2 q.d
6	Aspenter 75 mg		2 q.d.
7	Hepathrombin gel	Heparin	twice a day

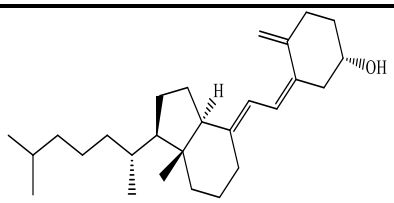


Chemical structure of sodium heparin

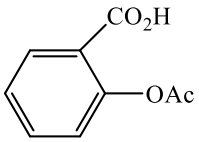
Heparin is a heteropolysaccharide. Its chain is linear, containing units of α-D-glucosamine, β-D-glucuronic and β-L-iduronic acids. The compound even in very small quantities prevents blood coagulation. Heparin is one of the most powerful natural anticoagulants. As a drug, it is used in myocardial infarction and in unstable angina, administered intravenously or subcutaneously.

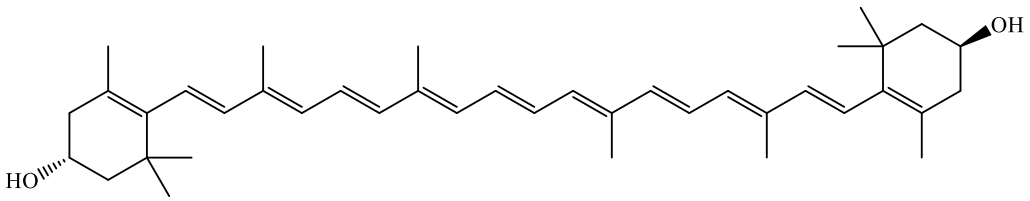
The patient continued the treatment for the next three days without noticing any improvement in his health. Therefore, he chooses his own treatment plan for the disease he is suffering from. The treatment scheme used by the patient was: vitamin D3, macushield, and aspirin (Table 3). In the next three days, the pain of the metacarpal bones disappears, the patient can move. It also reduces the pain in the medial cuneiform bone that is supposed to be fractured.

Table 3. The patient's own treatment plan. (Schema C)

No	Drug name	Structure	Dose
8	Vitamin D3		2000 IU/day (50 mcg)
9	Macushield	Mixture of: - Lutein - meso-Zeaxanthin - Zeaxanthin	0.6 g/day

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 1 Jan-Feb 2023, pp: 2481-2485 www.ijprajournal.com ISSN: 2249-7781

10	Aspirin		500 mg/day



meso-Zeaxanthin

meso-Zeaxanthin is one of the three stereoisomers of zeaxanthin, the stereoisomer (3R,3´S-Zeaxanthin). The molecule belongs to carotenoids (tetraterpenoids). These are plant-based pigments and some of nature's best antioxidants. Their biochemical properties make them effective in preventing diseases. Lutein and zeaxanthin are also carotenoids.

On the third day of treatment according to his own scheme (11 days since the accident), the patient steps for the first time on the entire sole of his left foot. The patient manages to carry 6 kg of additional weight on both arms and to climb the 30 steps to the third floor of his home. As a result of straining to carry the extra weight, the patient experiences pain in the left cuneiform bones.

Table 4. The evolution of healing relying on the drugs in the treatment schemes.

Schema of treatment	Time (day)	Pain	General health scores [%}
A	6	Very strong	5%
B	3	Strong	10%
C	25	Medium	45%
	50	Weak	80%
	70	No pain	100%

A self-assessment score (SAFE-Q), pain scores, activities of daily living (ADL), and general health score were performed during treatment (Table 4). Complete recovery of the patient occurred after 2.5 months.

III. CONCLUSIONS

When walking, a slip followed by an imbalance and a fall induces an indirect force on the cuneiform bones which can fracture. Isolated medial cuneiform fracture is rare. The fracture is highlighted by X-ray radiography. Three treatment plans were used.

REFERENCES

[1]. D. G. Steele, C. A. Bramblet, “The anatomy and biology of the human skeleton”, TEXAS A&M UNIVERSITY PRESS, 2003, p.174.
[2]. D. H.-Y. Tai, J. Emerg. Med. Trauma Acute Care., 2 (**2017**).
[3]. N. S. Babu, G. V Gambardella, M. A Bowlby, J. Am. Podiatr. Med. Assoc., 107 (**2017**) 436.
[4]. R. C. Olson, S. S. Mendicino, M. S. Rockett, Foot Ankle Int., 21 (**2000**), 150.
[5]. H. Liszka, A. Gadek, Przegl. Lek.,69 (**2012**) 708.

[6]. K. Yamauchi, S. Miyake, C. Kato, T. Kato, FAOJ, 10 (**2017**) 10.
[7]. A.Eraslan, S. Ozyurek, B. Erol, E. Ercan, BMJ Case Rep., 22 (**2013**), 1.
[8]. S. F. Taylor, D. Heidenreich, South. Med. J., 101 (**2008**) 848.
[9]. F. Guler, A.B. Baz, A. Turan, O. Kose, S..Akalin, Foot Ankle Spec., 4 (**2011**);306.
[10]. https://www.medpagetoday.com/popmedicine/celebritydiagnosis/90076.
[11]. C. G. Rasmussena, S. B. Jorgensena, P. Larsena, M. Horodyskyya,I. L. Kjæra, R. Elsoea, Foot Ankle Surg., 27 (**2021**) 181.