

Subtalar Dislocation Reduction with Regional Block in Emergency Department

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ABSTRACT

Acute subtalar dislocation accounts for only 1-2% of joint dislocations. The management of such cases is to perform a closed manual reduction under procedural sedation or general anesthesia. The use of regional

blocks in the management of these types of injuries has not been highlighted. In this case report, we present a case of a patient with subtalar dislocation, which was successfully reduced under regional ankle

Keywords: Subtalar Dislocation; Regional Ankle Block; Emergency Department

INTRODUCTION

Subtalar dislocation occurs when the talonavicular and talocalcaneal joints are disrupted while the calcaneo-cuboid joint remains intact. It is relatively rare and accounts for only 1-2% of all joint dislocations [1]. The injury usually occurs following high impact or high energy mechanisms, for example, by motor vehicle injury or fall from height [2].

The dislocation is divided into medial or lateral dislocations depending on the direction that the foot takes in relation to the talus. Medial subtalar dislocations are more common and occur in 85% of subtalar dislocations. These dislocations are also called “acquired clubfoot” or “basketball foot”. Lateral subtalar dislocations occur in about 15% of cases and are sometimes referred to as “acquired flatfoot” [3].

The use of procedural sedation and analgesia (PSA) for closed manual reduction of such injuries has been used over the years which requires proper monitoring. PSA with narcotics and benzodiazepines is not only more risky for the patient but also adds significant time, cost, and demand for extra hospital personnel during the procedure [4]. One alternative to PSA is the regional ankle block. Regional ankle blocks are very safe, provide a similar degree of analgesia as PSA, decrease the time and cost of emergency room visits, and provide sufficient conditions to allow for closed reduction [5].

CASE REPORT

A 30-year-old gentleman presented to the emergency department (ED) following a motor vehicle crash (MVC). He had fallen on his right side with his foot caught against the ground. Clinical examination and radiographic examination revealed that he had sustained a closed right lateral subtalar dislocation (Figure 1 and Figure 2). In this case, we decided to perform closed manual reduction under regional anesthesia. An ankle block was performed for this patient. Ultrasound was used to avoid neurovascular injury.

TECHNIQUES

Ankle block: Five nerves are blocked by the local infiltration of 20 ml of 2% lignocaine. The posterior tibial nerve was infiltrated behind the medial malleolus (by palpating the tibial pulse and advancing the needle until the underlying bone is encountered. The needle was withdrawn for 1 – 2 mm and aspiration attempted; if no blood was obtained, 5 – 8 ml of local anesthetic was injected with simultaneous withdrawal of the needle). The saphenous nerve was infiltrated just proximal to the medial malleolus along the anteromedial surface of tibia around the long saphenous vein. The deep peroneal nerve was infiltrated in a transverse fashion around the dorsalis pedis artery. The superficial peroneal nerve was located by palpating around the anteromedial aspect of the lateral malleolus and infiltrated along its width. The sural nerve is not routinely blocked except for surgery involving

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Figure 1: Photograph of a lateral subtalar dislocation demonstrating the characteristic deformity



Figure 2: Radiographic evaluation of a lateral subtalar dislocation in the antero-posterior (AP) view. Note that the ankle mortise is intact and the bones of the foot are displaced laterally.



the lateral border of the foot, but when done, it is infiltrated in the area between the Achilles tendon and lateral malleolus [6].

The patient reported a pain score of 7 prior to the procedure. During the procedure, his pain score was 2. Once the procedure was over, his pain score had dropped to 0. The circulation was intact with good pulse felt on dorsalis pedis artery and posterior tibial artery. The patient tolerated the reduction well and was placed in an "L and U splint." A post-reduction film showed good realignment and patient was discharged with orthopedic follow-up in the morning.

DISCUSSION

The ED receives patients with trauma at all hours of the day. These patients come unscheduled, with a diverse past medical history and sometimes with multiple injuries. Some of these injuries, such as the subtalar dislocation presented above, may need urgent treatment to avoid further morbidity to the patient. As in the case above, reduction of upper or lower limb joint dislocations are normally carried out in the ED either under procedural sedation or regional anesthesia [7].

Procedural sedation is defined by the American College of Emergency Physicians as a technique of administering sedatives or dissociative agents, with or without analgesics, to induce a state that allows the patient to tolerate unpleasant procedures while maintaining cardiorespiratory function [8]. Patients who present in the ED with trauma and those who need to undergo procedural sedation for painful procedures frequently are not properly fasted and may have multiple other injuries. They may also have other pre-existing medical conditions that put them at a higher grade of the American Society of Anesthesiologists (ASA) physical status classification system. These types of patients are at risk of aspiration or adverse events from the sedative or analgesic drugs used for procedural sedation, such as hypotension and respiratory depression. In such cases, the use of regional blocks can be a useful alternative [7].

Regional blocks are being used more frequently in the ED for the treatment of traumatic injuries. In recent years, the advancement in ultrasound technology and training has increased the use of ultrasound guided nerve blocks to increase its effectiveness and safety [9-10].

The use of regional anesthesia also improve patient's safety outcome since it precludes the need for analgesics and sedatives and their inher-

ent potential side effects [11]. It also helps reduce the need for patient monitoring and post-procedure observation. Thus, it can improve patient waiting time and reduce ED overcrowding. Effective regional blocks provide adequate patient analgesia for short procedures, as described in our case report above.

CONCLUSION

Dislocation of the hindfoot, through the subtalar joint, remains a relatively uncommon injury. Management of closed isolated subtalar dislocation is by immediate conservative treatment in order to avoid or reduce the incidence of early soft tissue and vascular complications and poor long-term outcomes. Ultrasound-guided nerve blocks can be safely and effectively performed for upper and lower limb emergencies by emergency physicians with adequate training. Ankle block can be used effectively for the reduction of subtalar dislocations. This can be an option of choice for emergency physicians.

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