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OPEN ACCESS

Annals of Case Reports

Mai Y, et al. Ann Case Report 14: 367.

DOI: 10.29011/2574-7754/100367

Case Report

Using Portable Ultrasound Guidance and Direct Incision as A Reliable Technique for Retrieval of a Retained Hypodermic Needle: A Rare Complication of Intracavernosal Injection

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Citation: Mai Y, Kannady C, Wang R (2020) Using Portable Ultrasound Guidance and Direct Incision as A Reliable Technique for Retrieval of a Retained Hypodermic Needle: A Rare Complication of Intracavernosal Injection. Ann Case Report 14: 367. DOI: 10.29011/2574-7754/100367

Received Date: 30 March, 2020; **Accepted Date:** 15 April, 2020; **Published Date:** 20 April, 2020

Abstract

Introduction and Objective: Intracavernosal Injection (ICI) of pharmacologic agents is an effective therapy for Erectile Dysfunction (ED). Complications are low, they include pain, hematoma formation, priapism, and penile fibrosis. However, intracorporal or subcutaneous needle breakage is a rare complication of ICI. We report our experience in this case report and discuss a reliable technique using portable Ultrasound (US) guidance intraoperatively to visualize and direct incision above the retained needle(s) for retrieval. We further propose a treatment algorithm for removal of retained needles from ICI.

Methods: Chart review with intraoperative US images presented.

Results: Pre-operative X-ray confirmed a retained hypodermic needle. The needle was difficult to palpate during exam under anesthesia with exact certainty. Using intraoperative US guidance, the retained needles was noted to have shifted in position and was successfully removed from the patient's penis without degloving the penis.

Conclusions: We propose a treatment algorithm beginning with a pre-operative plain x-ray to confirm needle breakage in addition to a detailed physical exam. We found that using intraoperative US guidance is a reliable method to identify the exact location to aid surgical removal. Incision should be made directly above the needle location. Degloving the penis is not recommended due to high likelihood of needle dislocation and leads to potential needle-stick injury.

Introduction

Intracavernosal Injection (ICI) of pharmacologic agents is an effective therapy for Erectile Dysfunction (ED) [1]. Complications are low, they include pain, hematoma formation, priapism, and penile fibrosis [2, 3]. However, intracorporal or subcutaneous needle breakage is a rare complication of ICI. We report our experience in this case report and discuss a reliable technique using portable Ultrasound (US) guidance intraoperatively to visualize and direct incision above the retained needle(s) for retrieval. We further propose a treatment algorithm for removal of retained needles from ICI.

Materials and Methods

Chart review with intraoperative US images presented.

Results

A 64-year-old male with ED after prostatectomy. The patient had been on self ICI for several years with satisfactory response. After an episode of priapism which resolved with phenylephrine injection, the patient noted needle breakage and was unable to locate the needle. No specific brand of needle was stated per patient. The patient presented to clinic for initial evaluation knowing he had lost a needle with vague penile discomfort at needle injection site but was otherwise asymptomatic. Office penile US was performed showing a palpable 6mm x 0.8mm radiopaque foreign body under the skin but not in the corporal body. Pelvic x-ray was performed which showed a thin radiopaque foreign body visualized at the lateral aspect of the penile shaft, thought to represent the injection needle (Figure 1-a).

Fig 1-a: Pelvic X-ray shown needle location

Figure 1-a: Pelvic X-ray shown needle location.

After discussion with the patient, decision was made for surgical retrieval of the foreign body due to patient overt concern, penile discomfort, and a palpable needle. The patient was taken to the operating room where several modalities were used to localize the needle. These included cardiac pacemaker magnet, portable US and palpation, of which only US was able to reliably locate the needle consistently (Figure 1-b). The magnet could not localize the needle and palpated location differed widely between surgeons performing an exam. We then scanned the entirety of the penis with US to ensure no other foreign` bodies were found. The needle foreign body was located 3cm proximal to coronal sulcus near mid shaft over the left corpora. Having marked the area where the needle was located, we made a 1 cm transverse incision directly over it. Dissection was carried down through tissue until the needle was found just under dartos fascia (Figure 1-c, d). The incision was closed and dressing applied.

Fig 1-b: Needle identified in the subcutaneous tissue with intraoperative ultrasound

Figure 1-b: Needle identified in the subcutaneous tissue with intraoperative ultrasound.

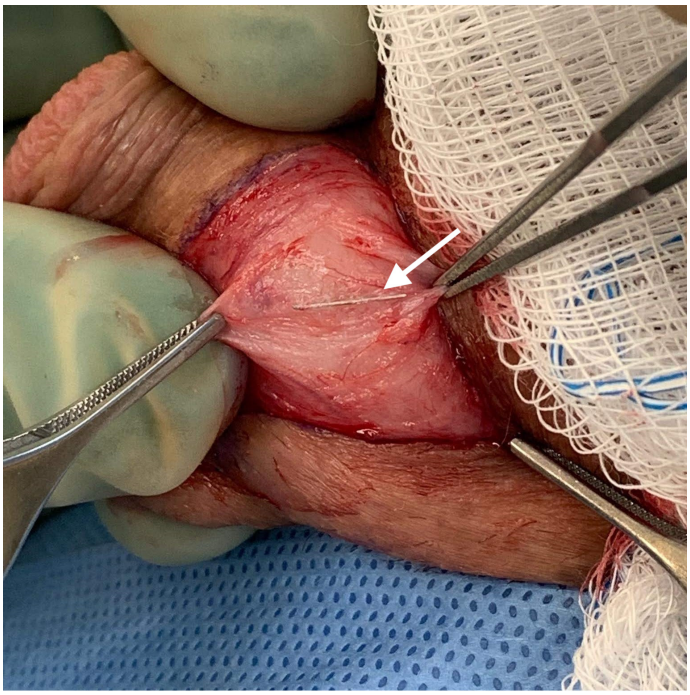

Fig 1-c: Direct incision above the needle

Figure 1-c: Direct incision above the needle.

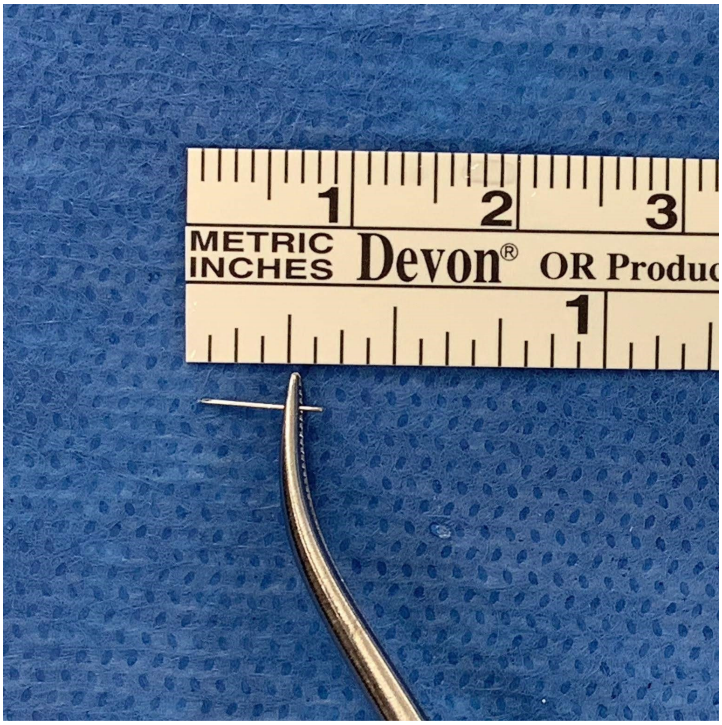

Fig 1-d: Needle after extraction

Figure 1-d: Needle after extraction.

Discussion and Conclusions

Intracorporeal needle breakage is a rare complication of ICI, with our literature search, only a few cases were reported [3-6]. Patients can present with a history of needle breakage with or without other symptoms such as penile edema, penile pain, and/or penile hematoma. The etiology of breakage is unknown. However, prior reports speculate that use of inappropriate needles, excessive force, and poor manual dexterity may play a role in the development of this complication. The hypodermic needle has a stainless steal cannula fixed in a polypropylene hub. The cannula often breaks away from the hub due to low tolerance at the junction [7]. We also noted that attempting to locate a retained hypodermic needle with a magnet is not reliable due to the needle composition of austenitic alloy [7].

We propose a treatment algorithm beginning with a pre-operative plain x-ray to demonstrate the presence of a retained needle in addition to a detailed physical exam [3, 4, 6] (Figure 1-e). Different management options have been reported in the past depending on whether the needle fragment was palpable [3]. Palpable needles have been removed immediately under local anesthesia [8, 9]. Impalpable needles have been managed with conservative management only, conservative management initially and surgical exploration when needle becomes palpable, or immediate surgical retrieval [3,5,6]. The treatment management of such a rare complication should be individualized, especially with impalpable needles after ICI. In a patient who is asymptomatic and has no signs of localized infection, conservative management with antibiotics should be considered.

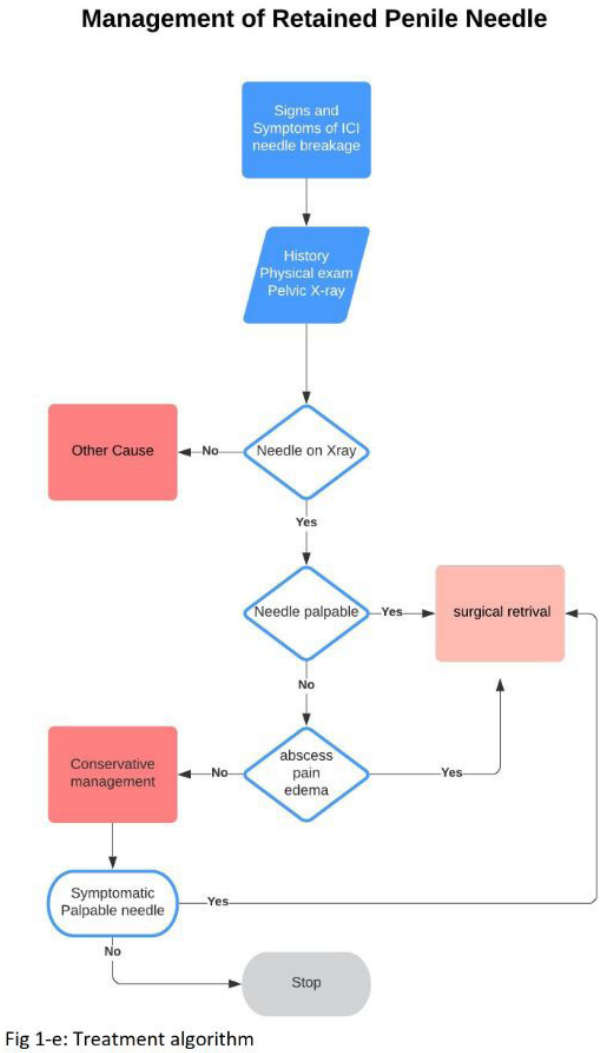

Figure 1-e: Treatment algorithm.

However, if the patient develops signs and symptoms of a penile abscess, penile pain, penile edema, or the needle/s becomes palpable, surgical extraction of broken needle/s should be performed. During surgical extraction of the retained hypodermic needle, we found that using intraoperative US guidance is a reliable method to identify the exact location to aid surgical removal. Incision should be made directly above the needle location. Degloving the penis is not recommended due to high likelihood of needle dislocation and potential for needlestick injury. This case report also highlights the importance of patient education on proper injection technique with emphasis on the delicacy of the needle and the possibility of needle breakage during injection.

Conflict of Interests

The authors report no conflict of interests.

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