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CASE REPORT

A simple method of removing a broken intramedullary locking screw using a chest drain

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Introduction

Removal of broken locking screws or nails may be necessary in the treatment of long bone nonunion or osteomyelitis. There are many different available products for the removal of locking screws although they are expensive and used infrequently.⁵ Several techniques have been described for removal of the metalwork with attention to broken screws but these generally involve pushing the screw into the surrounding soft tissues or require large soft tissue dissection and cortical disruption.^{1,2,5,6,8,9,11} There has also been reported significant morbidity with removal through these techniques.¹⁰ This problem can be compounded if the broken screw becomes lost in the intramedullary canal. There are a few reported techniques for removal of the locking screw in this situation either using laproscopic forceps^{3,4} or by the use of a sliding knot.⁷ These techniques rely on either a prior knowledge of the knot tying technique or the availability of a specialised instrument which may not be available at the time of surgery, and may be difficult to use. We report on a simple technique of using a standard chest drain to remove the broken screw with suction.

Technique

In this case, a tibial nail was being removed for an infected nonunion. A proximal locking bolt was broken, and on removing the nail, the bolt fell into the intramedullary canal. Initial

attempts using a cement removal curette pushed the bolt further down the intramedullary canal. A size 10 French standard chest drain was cut flush at the tip and inserted into the intramedullary canal. Using the image intensifier, the chest drain was advanced to the level of the broken screw guided by the radio-opaque markers on the drain (Fig. 1). Suction was then applied removing the screw.

This method avoided a significant soft tissue dissection or cortical disruption. It was simple and effective without the prior knowledge of specific knot tying techniques or special equipment. It should therefore be easily reproducible by

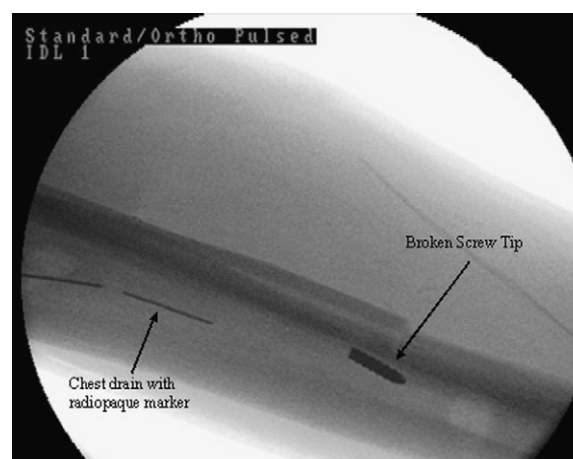


Figure 1 Broken Locking screw in intramedullary canal with size 10 French standard chest drain visible superiorly in the canal.

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anyone who encounters this problem and needs to remove loose intramedullary metal.

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