

# Retained Foreign Body not Detected by Imaging Methods

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## Abstract

In this case presentation, we aimed to present a case of a retained foreign body in the gluteal region of a male child that was overlooked in imaging methods. An 11-year-old male child was brought to the emergency department by his family after reporting that a splinter had entered his left inner hip area while sliding on a slanted board they had placed to play. A lesion was detected on the left inner hip area, where the patient indicated pain, potentially corresponding to the point of entry. However, no foreign object or hardness was felt upon examination. A superficial ultrasound (US) examination was performed, and no pathology was found in the lesion site or the surrounding area. As the patient's severe pain persisted, a pelvic computed tomography (CT) scan was conducted. The pelvic CT scan revealed air densities in the region of the skin lesion, but no other pathology was identified. Later, due to the continuation of the patient's complaints, the area was done repeat physical examination along the air densities starting from the skin lesion. During this examination, a hardness was detected under the skin on the upper outer side of the right hip, at the end of the tract originating from the skin lesion. An incision was made at the site of the palpable hardness. Upon finding a foreign object, the child was made consultation to the pediatric surgery department. The foreign body, measuring approximately 35x0.8 cm, was then removed in a procedure performed by the pediatric surgery team. In cases of retained foreign body, although imaging methods such as US and CT are important for diagnosis, it should be remembered that in rare cases where imaging methods are not helpful, a thorough history and physical examination remain the most effective approach.

**Keywords:** Computed tomography, retained foreign body, ultrasound

## Introduction

Retained foreign body accounts for 7% to 15% of emergency department visits, and it has been found that 38% of these foreign bodies are overlooked during the initial evaluation (1). In the United States, 37% of malpractice lawsuits related to emergency departments have been linked to foreign bodies (2). Materials such as wood, acrylic, and some plastics have densities similar to the surrounding soft tissues, making them difficult to visualize, and it has been reported that only 15% of wooden foreign bodies are detected in plain radiographs (3).

In this case presentation, we aimed to present a case of a retained foreign body in the gluteal region of an 11-year-old male child that was overlooked in imaging methods.

## Case Report

An 11-year-old male child was brought to the emergency department by his family after reporting that a splinter had entered his left inner hip area while sliding on a slanted board they had placed to play. The patient's general condition was good, with clear consciousness, cooperation,

and orientation. His vital signs were as follows: blood pressure 130/70 mmHg, pulse 76/min, respiratory rate 18/min, body temperature 36.5°C, and SaO<sub>2</sub> 99%. A lesion potentially corresponding to the point of entry was identified at the site of pain, as indicated by the patient, in the left inner hip region (Figure-1). However, no foreign body or hardness was felt upon examination. A superficial ultrasound (US) examination showed no pathology at the lesion site or in the surrounding area. As the patient's severe pain persisted, a pelvic computed tomography (CT) scan was performed. The pelvic CT scan revealed air densities in the region of the skin lesion (Figure-2), but no other pathology was found. Later, as the patient's complaints continued, the area was re-examined along the tract of air densities starting from the skin lesion. During this examination, a palpable hardness was found under the skin on the upper outer side of the right hip. A superficial US examination was requested at the site of the palpable hardness, but no pathology was identified again. Despite the lack of pathology detected in imaging methods, the palpable hardness and the patient's severe pain prompted a small incision to be made at the site of the hardness (Figure-3). Upon finding a foreign body, the child was consulted to the pediatric surgery department. A foreign

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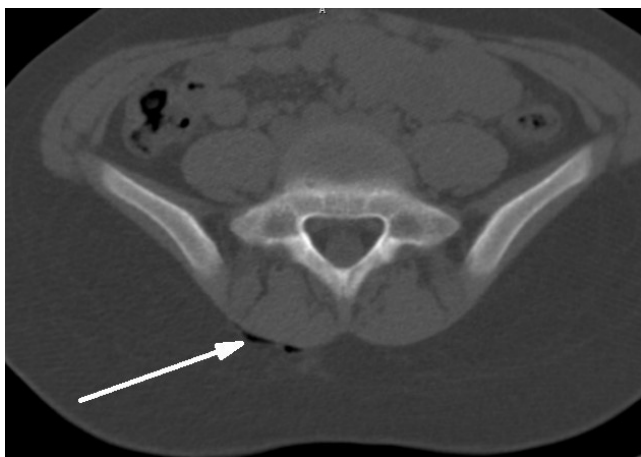
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**Figure 1.** In the initial examination, the area where the patient reported pain, which was considered as the possible entry site, was identified.



**Figure 2.** The pelvic CT scan revealed air densities in the region of the skin lesion.



**Figure 3.** The incision made over the area with hardness during the examination.



**Figure 4.** Removed foreign body

body measuring approximately 35x0.8 cm was removed during the procedure performed by the pediatric surgery team (Figure-4). The patient was followed and subsequently discharged.

## Discussion

In patients presenting with suspicion of a foreign body, a detailed history and physical examination are crucial during the initial assessment. Metals, glass, and wood are the most commonly encountered foreign bodies (4). Metal objects are easily detected in plain radiographs. However, glass and wood are difficult to visualize on radiographs, and glass alone accounts for 50% of foreign bodies that are overlooked despite physical examination and radiography (5). In our case, the foreign body was a piece of wood, which was not detected through imaging methods at the initial stage but was diagnosed later based on suspicion following a careful physical examination.

In cases of injury within the first 24 hours, the entry site can usually be easily seen, and intervention is more straightforward, making the ideal time for diagnosis and treatment within the first 24 hours (6). Delayed treatment can lead to complications such as infection, delayed wound healing, and loss of function (7). Therefore, early diagnosis is essential; failure to make a diagnosis may lead to malpractice claims and compensation lawsuits (5). In our case, the patient presented to the hospital 2 hours after exposure to the foreign body, and the intervention was performed.

Bedside US is an easily accessible, radiation-free, inexpensive, and safe imaging method commonly used in emergency department practice. Since most wooden

foreign body insertions result from low-energy trauma, they are typically superficial. US is one of the best imaging techniques for diagnosing superficially located foreign bodies (8,9). However, in our case, the foreign body could not be detected using US.

For detecting deeper foreign bodies CT may be used. CT has been shown to be the best imaging method for plastic, glass, and stone foreign bodies (10). In our case, following the failure to identify the foreign body on USG, a CT scan was performed based on the patient's history and physical examination findings. However, the initial interpretation of the CT scan was normal, with the exception of air densities. Afterward, a foreign body was detected during incision at the site of the palpable hardness, and the foreign body was removed.

## Conclusion

In cases of retained foreign body, although imaging methods such as US and CT are important for diagnosis, it should be remembered that in rare cases where imaging methods are not helpful, a thorough history and physical examination remain the most effective approach.

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