

Laparoscopic Removal of Needle After Penetration and Migration in Children: Case Report

İğnenin Penetrasyon ve Migrasyonu Sonrasında Çocuklarda Laparoskopik Çıkarılması

Ufuk ATEŞ,^a
Gönül KÜÇÜK,^a
Gülnur GÖLLÜ,^a
Ayдын YAĞMURLU,^a
Hüseyin DİNDAR^a

^aDepartment of Pediatric Surgery,
Ankara University Faculty of Medicine,
Ankara

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Yazışma Adresi/Correspondence:
Gülnur GÖLLÜ
Ankara University Faculty of Medicine,
Department of Pediatric Surgery, Ankara,
TÜRKİYE/TURKEY
drggollu@yahoo.com

ABSTRACT Although most of ingested foreign bodies pass through gastrointestinal tract uneventfully, rarely the foreign body may penetrate out of gastrointestinal tract and may migrate to other abdominal organs. Migration of a foreign body to the liver is extremely rare and very few pediatric cases have been reported in the literature. Two cases of needle ingestion, one of which migrated to liver and the other penetrated to omentum, were reported in this paper and the cases were managed laparoscopically with the aid of fluoroscopy. The aim of the study is to emphasize that surgeons dealing with non-progressive foreign bodies shouldn't hesitate on the decision of surgery, especially in centers where laparoscopy is widely available.

Key Words: Liver; foreign bodies; laparoscopy; child

ÖZET Yutulan çoğu yabancı cisim gastrointestinal sistemden olaysız geçmesine rağmen, nadiren yabancı cisimler gastrointestinal kanaldan dışarı penetre olup karaciğer veya diğer organlara yerleşebilirler. Yabancı cisimin karaciğere yerleşmesi çok ender olup literatürde çok az vaka rapor edilmiştir. Altı yaşında iğne yutma hikayesi ile hastaneye kabul edilen bir erkek çocuk ve karın ağrısı ile başvuran on yedi yaşında, ayakta direkt karın grafisinde iğne saptanan kız çocuğun izlemlerinde iğnelerin ilerlemediği tespit edildi. Birinde karaciğere diğerinde omentuma yerleşen iğneler floroskopi eşliğinde laparoskopik olarak çıkarıldı. Bu sunumun amacı, ilerleme göstermeyen yabancı cisimlerde, özellikle laparoskopinin yaygın olarak kullanıldığı merkezlerde, cerrahların cerrahi kararını almakta tereddüt etmemeleri gerektiğini vurgulamaktır.

Anahtar Kelimeler: Karaciğer; yabancı cisimler; laparoskopi; çocuk

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Foreign body ingestion is common in children, especially between six months and six years of age.¹ The majority of foreign bodies passes uneventfully through the gastrointestinal tract and is eliminated in the stool. Rarely ingested sharp foreign body can perforate the gut.² Migration of the foreign body is very rare and migration to liver is extremely rare. In this report two cases of needle migration from gastrointestinal tract which were managed laparoscopically were reported.

CASE REPORT

A six-year old boy was admitted to hospital with a history of needle ingestion and seventeen-year old girl was admitted to hospital with the

symptom of abdominal pain. Both of the children were asymptomatic and plain abdominal X-ray revealed needle (Figure 1a). Computerized tomography scans showed a foreign body which is located extraluminally at posteroinferior of the liver in Case 1 (Figure 1b). In their follow-ups, since the needle didn't progress for two weeks, both of the patients were planned to have diagnostic laparoscopy. During laparoscopy, fluoroscopy was used to find the localization of the needle (Figure 1c). The needle was found in the omentum at the inferior of left lobe of liver in Case 1. Laparoscopic grasper was used to remove the needle. There was no perforation in stomach and intestines. In Case 2, the diagnostic laparoscopy revealed the needle buried in the liver at the inferior of left lobe with the tip of needle appearing at the surface of the liver (Figure 1d). Extraction of the needle with laparoscopic grasper was tried however since it was buried in the liver, couldn't be successful and with the aid of Ligasure® the needle was removed together with liver tissue and control fluoroscopy confirmed com-

plete removal of the needle. Stomach and intestines were controlled for perforation and not detected. No intraoperative and postoperative complications occurred in both of the patients. The children had no problem in their follow-ups.

DISCUSSION

Most of ingested foreign bodies travel through the gastrointestinal system without harm and is eliminated with the stool.^{3,4} 10-20% of ingested foreign bodies require endoscopic removal.⁴ Sharp-edged foreign bodies may rarely cause perforation in the gastrointestinal tract and may migrate to organs.⁵ The history of foreign body ingestion is often missing.⁴ Traditionally, the diagnosis of ingestion and localization of the foreign body is made by X-ray.⁶ If the foreign body is not eliminated in the stool, radiography is taken weekly to determine whether it is progressing satisfactorily.⁶ If the foreign body is progressing through the gastrointestinal system the management is conservative. In situations of non-progressive foreign body, especially the sharp-

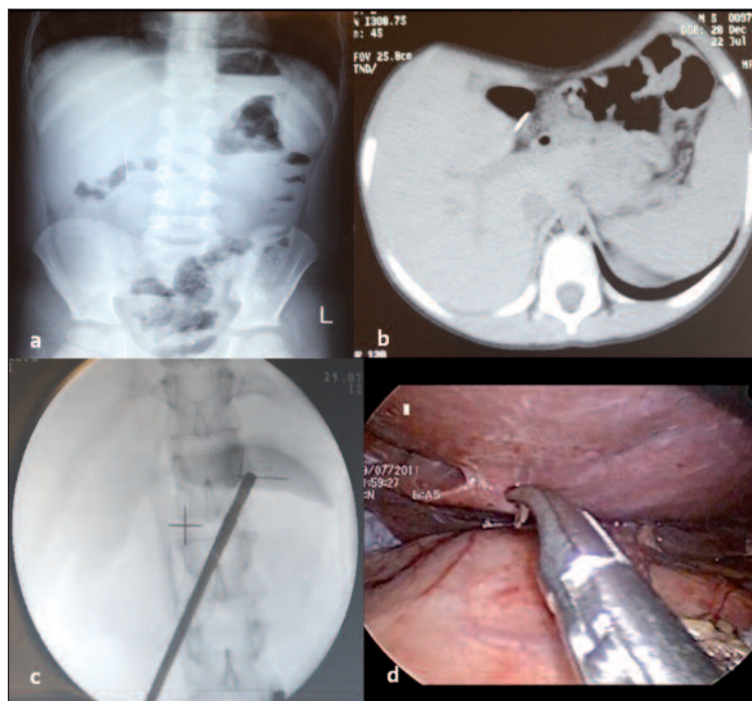


FIGURE 1: **1a.** Plain abdominal X-ray of Case 1 demonstrates needle, **1b.** Computerized tomography of Case 1 demonstrates foreign body located extraluminally at posteroinferior of the liver, **1c.** Fluoroscopic view of Case 2 during laparoscopy **1d.** Laparoscopic view of the needle buried in the liver in Case 2.

(See color figure at <http://www.turkiyeklinikleri.com/journal/pediatric-dergisi/1300-0381/>)

pointed foreign bodies or there are signs of acute abdomen, surgery is indicated.^{3,7}

The penetration of needle out of gastrointestinal tract is a rare entity. Once the needle is found in the same position in plain abdominal X-ray, penetration should be suspected. If endoscopic evaluation of upper and lower gastrointestinal tract doesn't reveal any foreign body, computerized tomography is used to determine whether or not perforation/penetration has occurred.⁷ After penetration is shown it should be surgically removed. The decision of surgery shouldn't be difficult, especially in centers where laparoscopy is widely available.⁷ The usage of fluoroscopy during laparoscopy may aid in the localization of the foreign body which may be deeply buried in the omentum. By using the plain X-ray, the structures around the possible site of foreign body are gently tapped with endograsper and movement of radiopaque needle is monitored with simultaneous fluoroscopy. The area that moves most is dissected and foreign body can be found by using this manner.

Hepatic foreign bodies may be asymptomatic or may cause abdominal pain, fever or abnormal liver function tests.^{3,5,8,9} Foreign bodies reach the liver in three ways: by direct penetration through the skin, by migration from gastrointestinal system (the most frequent) or from blood vessels.^{3,5,6} Since

hepatic foreign bodies may cause fatal complications, the risk-benefit ratio of extraction of foreign bodies seems to favor operation, especially if minimally invasive approach can be used.⁴ Although the recommendations are to remove hepatic foreign bodies, there are some authors who recommend conservative treatment, one of whom was obligatively used conservative treatment because of the patient's refusal on operation and the patient had no symptom or complication in the follow-ups.^{5,10,11}

Seven pediatric cases of sewing needle in the liver have been reported in the literature, most of which required laparotomy. Four children were treated with laparotomy, two by laparoscopy and one by conservative management. With the case reported in this paper, the number of patients treated with laparoscopy is increased to four and being the eighth case in the literature.^{3,4,8,10,12}

CONCLUSION

Penetration of foreign body out of gastrointestinal tract is rare and migration to liver is even much rarer. In cases of non-progressive foreign bodies in gastrointestinal tract, especially the sharp-pointed ones, the surgeon must carefully evaluate the case as penetration and the surgeon shouldn't hesitate for intervention especially in centers where laparoscopy is widely available.

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