

Laparoscopic removal of an ingested pin migrating into the liver

Laparoskopska odstranitev zaužite bucike, ki je zašla v jetra

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Abstract

Most ingested foreign bodies pass through the gastrointestinal tract without giving rise to complications. If they become lodged in a narrow segment of the gastrointestinal tract, perforation may occur. Although foreign bodies may migrate to almost any intra-abdominal organ, perforation of the duodenum and migration into the liver is extremely rare. We report a woman who ingested a pin that perforated silently the duodenum and was thrust into the liver. Traditional surgical treatment requires laparotomy for a foreign body removal. In our case, the pin was removed laparoscopically. The postoperative course was uneventful and the patient was discharged on the second postoperative day. With the use of a laparoscopic approach for removal of penetrating intestinal foreign bodies, laparotomy and its attending complications are avoided. Laparoscopic removal is less invasive, and associated with less postoperative pain, shorter hospital stay and earlier recovery.

Key words. *Ingested foreign body, migration to the liver, laparoscopic removal.*

Povzetek

Večina zaužitih tujkov potuje skozi prebavni trakt brez zapletov. Če pa se zagostijo v ozkem predelu prebavne cevi, lahko pride do predrnja. Čeprav tujki lahko prispejo do kateregakoli trebušnega organa, le redko predrejo dvanajstnik in zaidejo v jetra. Poročamo o bolnici, ki je požrla buciko, ki je neopazno predrla dvanajstnik in se zadržala v jetra. V takšnih primerih odstranitev tujka običajno zahteva laparotomijo. Naši pacientki smo tujek odstranili laparoskopsko. Pooperativni potek je bil brez zapletov in bolnica je bila odpuščena dva dni po posegu. Z laparoskopsko odstranitvijo tujkov, ki prodrejo v črevo, se izognemo spremljajočim zapletom. Tehnika je manj invazivna, manj je pooperativnih bolečin, hospitalizacija je krajša in okrevanje hitrejše.



Ključne besede. Zaužiti tujek, potovanje v jetra, laparoskopiska odstranitev

Case report

A 64-year-old woman without surgical history was admitted to the outpatient clinic of surgery with nausea, pain and tenderness under the right costal margin of four hours' duration. She had mild fever (37.4°C), increased white blood count (11.4), and slightly elevated liver enzymes. A clinical diagnosis of acute cholecystitis was suspected and an ultrasound examination of the abdomen was performed. No gallstones or any other pathological changes in the gallbladder or abdominal cavity were found. The patient received spasmolytics which provided symptomatic relief and she was discharged home. One month later the patient presented again with similar complaints though of lesser intensity (no fever, normal white blood count and liver enzymes). She was referred for surgical consultation. Physical examination disclosed no abnormalities with the exception of mild tenderness on deep palpation under the right costal margin. A plain radiograph of the abdomen revealed a pin situated in the duodenal bulb area, with the sharp end pointed to the liver and the blunt head at the level of the duodenum (Fig 1).



Figure 1

A plain radiograph of the abdomen showing a pin situated at the level of the duodenal bulb.

As suspected on the grounds of the lateral radiograph the pin did not enter the lumen of the digestive tract. Endoscopy of the upper digestive tract showed mild reflux gastritis, but no traces of a foreign body. Computed tomography of the abdomen revealed a pin in the liver segment II with the head of the pin situated in the wall of the duodenum (Fig 2).

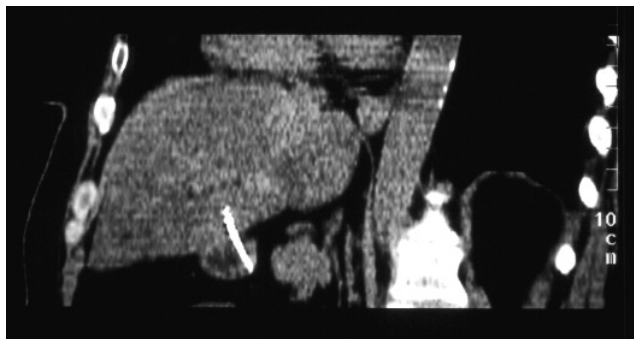


Figure 2

A plain CT scan of the abdomen showing a pin thrust in the liver.

The patient recollected that about a month before she drank tea from a cup in which she usually stored pins, which seemed to explain how pin ingestion happened.

The patient was put in the supine position under general anaesthesia. After creating pneumoperitoneum via Veress needle inserted into the supra-umbilical region, a 10-mm camera trocar was inserted. Another 10-mm trocar was placed in the right upper quadrant just below the costal margin for inserting a fan shaped retractor used to lift up the liver. A 5-mm trocar was placed in the epigastrium for the insertion of forceps and scissors. Laparoscopic exploration of the peritoneal cavity disclosed no obvious abnormality. Close inspection of the inferior surface of the left liver lobe revealed adhesions of the duodenal wall and a band of fibrous granulation tissue through which a pin could be traced (Fig 3).

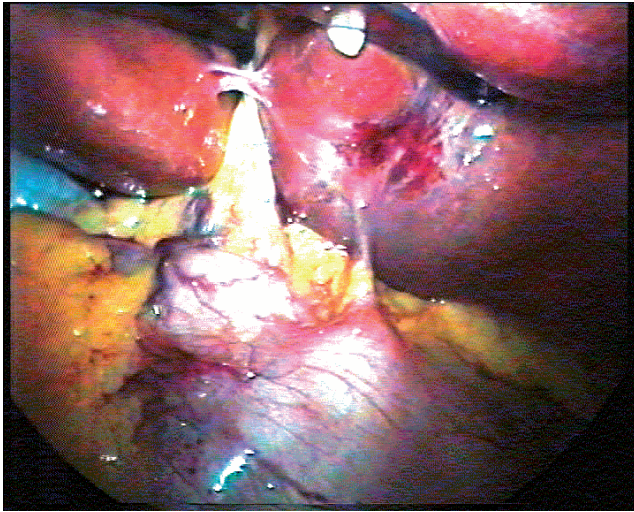
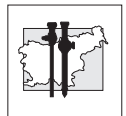


Figure 3

A band of fibrous granulation tissue between the liver and the duodenal wall.

We avoid using cautery because of the risk of necrosis and perforation of the duodenum.

Upon sharp removal of the band, a rusted pin lying in a casing of dense fibrous tissue was seen. Fibrous tissue was completely excised so that the head of the pin could be grasped with a forceps and the pin pulled out of the liver (Fig 4).

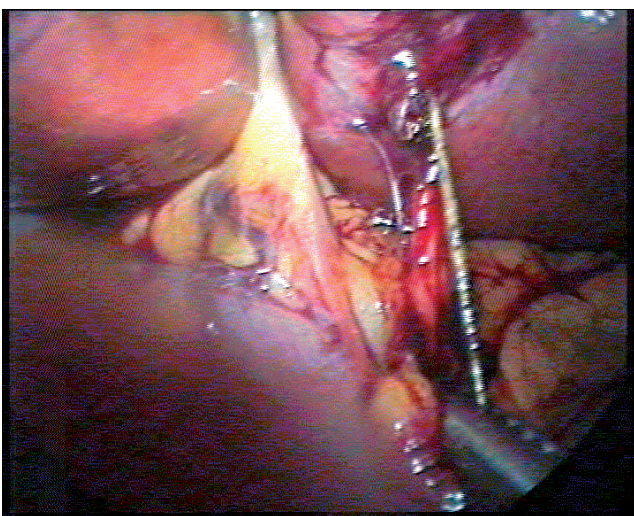


Figure 4

After complete excision of fibrous tissue, head of the pin was grasped with forceps and the pin was pulled out of the liver.

Removing the pin did not result in any bleeding or bile leak. The pin bed was irrigated and a drain inserted. The postoperative course was uneventful and the patient was discharged on the second day after the procedure. On a control examination one month after the procedure she was asymptomatic.

Discussion

Reportedly, 80% to 90% of ingested foreign bodies that reach the gastrointestinal tract pass through it without incident (5); 10% to 20% have to be removed by endoscopy or other conservative interventions, and only about 1% require surgery (9,12,16). However, a sharp object may cause gastrointestinal bleeding (2) or may penetrate the intestinal wall and migrate to other organs (3). Once in the stomach, 95% of all ingested objects pass uneventfully through the remainder of the gastrointestinal tract (2). The frequency of perforation due to foreign bodies is estimated to be less than 1% (12). If only sharp objects are considered, the incidence of perforations is much higher and increases to 15 % (11). There have been reports on the migration of needles, pins or toothpicks to the urinary bladder causing haematuria (3), to the inferior vena cava resulting in a duodenocaval fistula (8), to the psoas muscle causing limitation of motion in the right hip (4) or to the mesentery and abdominal wall (7). Perforation tends to occur in areas of acute angulation. Problem areas that can cause difficulty include physiological sphincters (pylorus and ileocecal valve), fixed curves (C loop of the duodenum), and sites of previous surgical anastomosis or congenital gastrointestinal malformations (webs, diaphragms, diverticula) (2). Perforation of the duodenum by needles or pins is rare, although the anatomical characteristics of duodenum, being a relatively immobile rigid tube with sharp angles, should predispose to perforation by a sharp foreign body (4). Since the duodenal contents are relatively sterile, perforation may produce only a minimal inflammatory response and follow an indolent course (14). The second portion of the duodenum is the most likely site of



perforation with intrarenal migration. The right kidney is usually involved following perforation of the duodenum (3). Migration of a foreign body from the gastrointestinal tract to the liver seems to be a rarity (1,6,13,10,15). It has been suggested that ingested foreign bodies turn and tumble until the blunt end assumes the forward direction (5). This was obviously not the case in our patient, since the sharp end of the pin was directed towards the liver. The needle presumably passed through the posterior wall of the first part of the duodenum, causing only few acute symptoms. Because of pain and tenderness under the right costal margin, a diagnosis of biliary tract pathology was suspected, but was not confirmed by ultrasound examination. Perforations associated with inadvertent foreign body ingestion mimicking intestinal obstruction, appendicitis, diverticulitis, abscess or even neoplasms have been described (2).

Conservative outpatient management is indicated in most patients with a foreign body in the stomach. Foreign bodies causing perforation or migration to other organs were traditionally removed by laparotomy (1,3,4,6,10,13). Recent advances in laparoscopic techniques now enable surgeons to use a minimally invasive approach in the treatment of this pathology. A laparoscopic approach used for foreign body removal combines the advantages offered by these techniques. In addition to being less invasive, the approach is associated with reduced postoperative pain, shorter hospital stay and faster recovery.

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