

## Case No. 9

49-year-old male

**Past medical history:** negative

**Recent medical history:** peptic disturbances for some years (epigastric pyrosis, epigastric pain from hunger, bulimia). Endoscopic and radiological findings showed a duodenal ulcer. Symptomatic episodes became aggravated on a seasonal basis, with prescribed dietary and pharmacological therapy having little effect. The patient was hospitalized in a local (suburban) primary-care hospital due to significant bleeding, where emergency sub-total gastric resection was performed. The immediate post-operative course was uneventful, and the patient was released on the tenth day as surgically healed.

**Clinical onset of the present disease:** on approximately the 20<sup>th</sup> day after gastric resection, the patient, now at home, began experiencing discomfort characterized by a sense of painful tension in the left hypochondrium with pain radiating to the homolateral shoulder; and progressively worsening fever, with episodes at times resembling intermittent fever. Symptoms continued to rise in intensity despite the antibiotic therapy prescribed by his general practitioner. The patient came under our observation one month after gastric resection.

### Physical Examination

The patient was febrile (38° C), and in generally fair conditions.

The abdomen presented a recent, well-consolidated, xipho-umbilical laparotomic scar. Pain for left hypochondrium pressure.

Thorax: percussion showed hypo-expansible left base and elevation of the corresponding hemidiaphragm, immobile during respiration. On auscultation a weakened vesicular respiration and friction rub in the left base.

Noteworthy among laboratory tests was the finding of neutrophilic leukocytosis (15,000 w.b.c.).

Standard thorax-abdomen radiography revealed elevation of the left hemidiaphragm with a large opaque area underneath, at the center of which was a clearly visible radio-opaque foreign body that was deemed in all likelihood to be a retained surgical gauze (Fig. 1).



Figure 1

Computed tomography (CT) confirmed radiological findings, pinpointing the subdiaphragmatic location of the foreign body (Fig. 2 and Fig. 3).

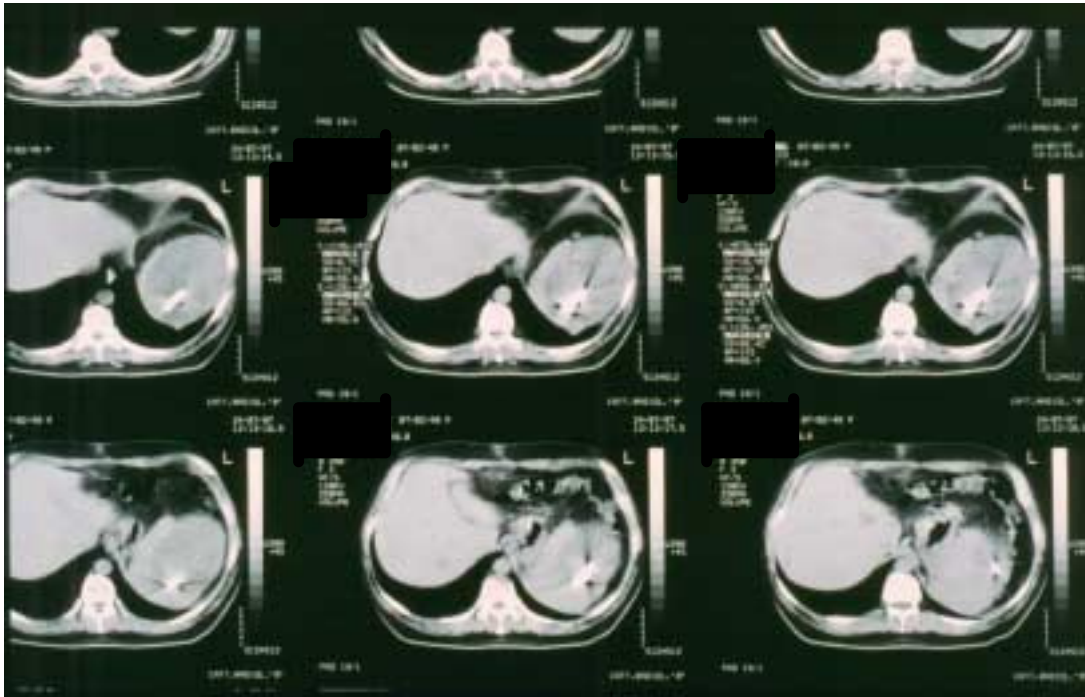


Figure 2

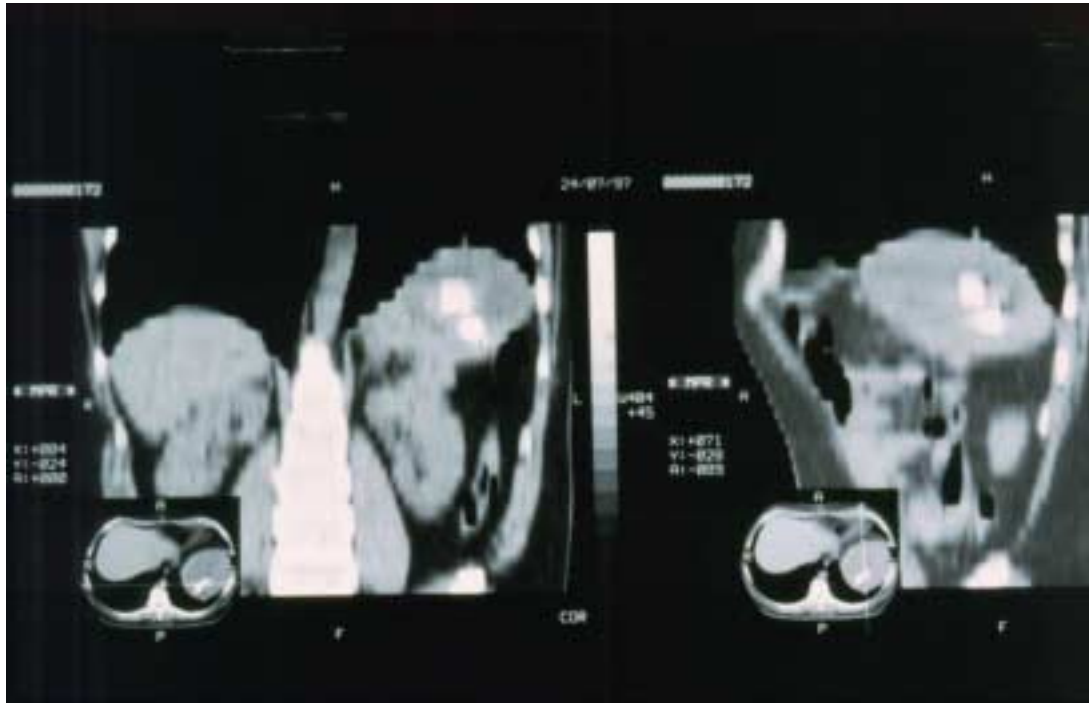


Figure 3

An attempt at the video-laparoscopic removal of the foreign body was thus decided.

### **Surgical procedure**

The patient was placed in a right oblique decubitus position. “Open laparoscopy” with positioning of Hasson trocar at the left pararectal line three fingers above the umbilicus.



Figure 4

The pneumoperitoneum was established with CO<sub>2</sub> at 12 mm Hg.. Three additional 10-12 mm trocars inserted in a semicircle near the left costal arch (Fig. 4). Adhesions secondary to the previous surgery were observed, appearing mainly in and completely enveloping the left hypochondriac region. Lysing of adhesions began medially and then laterally until reaching a cavity from which purulent material emerged. This was aspirated and the cavity irrigated clean with diluted antiseptic solution. The weave of the gauze became visible at the bottom

of the incision. After recognizing and preserving the splenic flexure of the colon and the left portion of the transverse colon, the above-mentioned incision was widened towards the diaphragm using a harmonic scalpel until the cavity was fully manageable: this was filled entirely by a large surgical gauze with a ribbon, its walls extended from the diaphragm above, medially to the spleen, below and laterally from the transverse colon and colonic mesentery. Continuing with irrigation of the cavity, detachment of the gauze from the walls became difficult due to the reciprocal penetration between the gauze and the surrounding tissues, above all on the splenic and colonic sides. Once all of the gauze was detached it was bagged and extracted. Copious irrigation of the residual cavity and the abdominal cavity with diluted antiseptic solution, and then with antibiotics diluted in 2000 ml of normal saline (the same as those administered parenterally). The drainage tube was positioned to aspirate out of the lateral port. Evacuation of the CO<sup>2</sup>. Suture of the ports (see **video clips 1 and 2**).

### **Post-operative course**

During the first 24 post-operative hours a clear overall improvement and progressive regularization of the thermal curve were observed. The patient was already on his feet that evening, and tractable abdomen with peristalsis was present. A scarce amount of slightly turbid liquid material collected in the drainage reservoir. The patient was free-of-fever. Antibiotics were discontinued. On the third day no accumulation of liquid in the drainage tube, whose patency was confirmed by subsequent washing and analysis of the aspirate. Fever-free status continued, and the leukocytosis receded. Physical and radiological examinations showed a normalized left diaphragmatic dome and regular respiratory functions. The patient gradually resumed normal eating, with regular gastrointestinal functions. The drainage tube was removed. Hospital release on the 4<sup>th</sup> day. Short- and long-term tests showed normalization of general, thoracic

and abdominal conditions. The patient resumed his regular professional routine approximately 10 days after surgery.

## **Remarks**

Admittedly, surgical error is an ever-present threat, regardless of the surgeon's skill. The emergency conditions under which an operation may have to be performed only exacerbate the risk, as in the present case for gastric hemorrhaging. Under such circumstances it is important to be mindful of those safeguard measures that can minimize error. Briefly, these precautions include:

- radio-opaque marking of surgical gauzes and pads (as was appropriately done in the case presented here);
- surgical pads with long tape and a slip-knot for secure external fastening;
- count of these materials before and after the operation;
- if used in the cavity, external fastening of these with heavy and firmly gripping surgical instruments (see Kocher).

A series of positive coincidences underlay the favorable outcome of this case:

- the symptoms, which promptly led the patient to clinical examination;
- the radiological detection of the foreign object;
- hospitalization in an appropriately equipped surgical setting with surgeons trained in video-laparoscopy.

Indeed, the mini-invasiveness of the treatment allowed for the resolution of the problem with relatively little distress for the patient, thereby assuring a positive outcome also from a medico-legal standpoint.

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