

## Case Report

# Laparoscopic retrieval of retained intraperitoneal drains in the immediate postoperative period

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## Abstract

Retained intraperitoneal Penrose drain secondary to fracture and adhesions in the immediate postoperative period happens on occasion. Most are unreported because of the fear of medico-legal problems. Previous management of such iatrogenic complications requires repeated laparotomy or wound exploration. Two patients who underwent appendectomy for ruptured appendicitis, with retained intraabdominal drains in the immediate postoperative period, managed eventually by laparoscopic retrieval are presented. Both patients had right low transverse incisions and intraabdominal drains exiting through a separate right lateral abdomen skin opening. Patient 1 had a stuck intraabdominal drain unable to be removed up to the second week. Patient 2's drain retracted intraperitoneally after its mobilization on the sixth post-op day. Both were managed by laparoscopy under general anesthesia with successful removal of both drains. Patient 1 underwent the procedure 3 weeks after the appendectomy, whereas Patient 2 had the procedure on her sixth post-op day. An additional new 1-cm wound in the periumbilical area was done for the introduction of pneumoperitoneum and 10-mm port for which the laparoscope was inserted. The second 5-mm port was inserted through the old drain site wound with peritoneal entry opening separate from the previous peritoneal defect viewed from laparoscope. Both drains had some marked adhesions from ingrowth of omentum to the side holes of the drain, causing it to get stuck in the pelvic cavity. This laparoscopic approach in the management of such iatrogenic complication, besides being cosmetically acceptable, contributes to early recovery and discharge of the patient, and helps to lessen the friction in the recently worsening doctor-patient relationship in Taiwan. Copyright © 2011 Elsevier Taiwan LLC and the Chinese Medical Association. All rights reserved.

*Keywords:* Laparoscope; Postoperative; Retained peritoneal drain

## 1. Introduction

Retained intraperitoneal Penrose drain secondary to fracture and adhesion in the immediate postoperative period is rare but happens on occasion. Often, it is under-reported for fear of medico-legal complaints. Previous management of such cases involved a return to the operating room and retrieval either by wound exploration or repeat laparotomy. In recent times, surgical procedures being done by laparoscopy have expanded enormously in kinds and numbers. We would like to present two patients with retained abdominal drain in the immediate postoperative period who were managed by laparoscopy.

## 2. Case report

Patient 1 was a 32-year-old female patient, who underwent appendectomy through a right lower abdominal transverse skin incision because of ruptured appendix, with a separate skin opening done for a pelvic drain. One week after operation in the OPD, difficult mobilization of drain was noted, as if the drain was stuck in the peritoneal cavity. Forceful pulling of the drain was done with near fracture of the side holes of the drain. Delaying the removal of the patient's drain for another week was done with the hope of eventual release. Unfortunately, the drain was still stuck as during the previous week.

Patient 2 was an 18-year-old woman, who also underwent appendectomy with pelvic drain because of ruptured appendix. On the sixth day, during mobilization of drain, the drain retracted intraperitoneally after removal of fixating suture and

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partially shortening the drain. Some blind attempts at retrieving the drain through the drain tract using Kelly forceps were done but failed.

Both patients underwent removal of the retained drain by laparoscopy. An open method inserting the 10-mm port in the umbilicus was done, through which pneumoperitoneum was introduced. Another 5-mm port was inserted to the wound opening of the drain site but entering the peritoneum through a separate site because omental adhesions were noted on the underside of the incision. In Patient 1, some omentum had grown into the side-holes of the fr 8 Penrose silicone drain, explaining the great resistance encountered when pulling the drain. The drains were pulled out from the 5-mm port in both patients.

The next day, diet was reinstated, and the patients were discharged the following day.

### 3. Discussion

Retained intra-abdominal foreign body, though rare, happens, with symptoms occurring from days to years after the original operation.<sup>1</sup> Most estimates range between 1/1,000 to 1/1,500 laparotomies,<sup>2</sup> and this figure may be an underestimation because not every incident is reported for fear of legal problems.

In case of drains, most are retained unknowingly, or if the drain is fractured and retracted intraperitoneally, because they were curled, sutured loosely with an unsecured knot, or overstretched if any excessive force was used during its removal. Leaving them for any period of time allows for tissue ingrowths around the drain and side holes, causing severe resistance on removal, with eventual breakage and retention. This had been the case in patient 1. In Patient 2, pelvic adhesions caused retraction of the drain from the outside to the inside. Review of the literature revealed innovative approaches to resolve this iatrogenic complication, such as percutaneous retrieval utilizing C-arm fluoroscopy-guided tract exploration with surgical hemostat.<sup>3</sup> Namyslowski et al. discussed utilizing balloon angioplasty through the drain site.<sup>4</sup> Almost always, the patients ended up undergoing re-exploration using formal laparotomy. With the diversity and new instruments evolving in laparoscopy, laparoscopic removal of retained drains is feasible and has become the treatment of choice. Because the fact that the patient is undergoing a second operation in the immediate period following a previous operation, the minimal addition of a new wound and minimal invasiveness of the

laparoscopic surgery is a plus, with the effect of diminution of friction and legal suits from the patient and relatives, and, more importantly, the early recuperation of the patient.

Here, we used an addition of just one external wound in the periumbilical area as a 10-mm port for introduction of pneumoperitoneum and laparoscope, in contrast to Childers' reports of conventional 4-port abdominal entry.<sup>5</sup>

This umbilical site, being familiar to every laparoscopist, increases the surgeon's confidence in ensuring the success of the procedure. For cosmetic reason, the succeeding port entry utilized existing wounds. In both our cases, the second 5-mm port, was done through the drain site outside, but penetrating through a new wound intraperitoneally to avoid the adhesion, guided by the laparoscopic viewer.

Visualization of the retained drains was easy. Once the drain was identified, removal of it by the grasper through the second port was done smoothly even though adhesions were present, which easily gave way to forceful pulling of the drain under visuals.

In conclusion, peritoneal drains may have developed adhesions and be fractured or retracted during mobilization, causing them to be retained intraperitoneally. This can be managed by laparoscopic approach rather than the conventional re-exploration. This approach in the immediate postoperative period following open surgery, further lessens the friction in the doctor-patient relationship, which is getting worse nowadays. Besides being cosmetically acceptable, with just the addition of a single new small wound for introduction of laparoscope, it is safe and acceptable to the patient and contributes to early recovery and discharge.

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