A Colonoscope Incarceration within Left Inguinal Hernia: Report of a Case

A Colonoscope Incarceration within Left Inguinal Hernia: Report of a Case

KIMURA, Yohei[1)2)3)] , TAGUCHI, Seiichi[1)] and GOI, Takanori[2)]

1) Department of Surgery, Fukui Insurance Hospital
2) First Department of surgery, University of Fukui
3) Department of Surgery, Kimura Hospital

Abstract:
Background: Incarceration of the colonoscope within the inguinal hernia including sigmoid colon is an unusual complication of colonoscopy. We report a rare case of colonoscope incarceration within a left inguinal hernia.
Case presentation: A 75-year-old man underwent a colonoscopy because of the positive result of a fecal occult blood test. During the examination, when the scope was inserted into the descending colon, the patient was suddenly complaining of left lower abdominal pain. An abdominal CT showed that the sigmoid colon and the colonoscope inside it were incarcerated in the left inguinal hernia. The colonoscope was stuck and not able to be either pushed or removed. An emergency operation was performed, when the colonoscope became incarcerated in the sigmoid colon of the left inguinal fossa. It was assumed that the sigmoid colon incarceration was due to adhesion with a hernial sac. We reduced sigmoid colon into the abdominal cavity and repaired the hernia hilum using a Direct Kugel Patch and onlay mesh.
Conclusion: We should be careful of patient's past history and physical examination before performing colonoscopy. We learned that inguinal hernia has a potential risk, such as the case we encountered during colonoscopy.

Key Words: Inguinal Hernia, Incarceration, Colonoscope

要旨：
背景：下部消化管内視鏡において，S 状結腸が内視鏡とともに嵌頓する鼠径ヘルニアの合併症は稀である。今回我々は左鼠径ヘルニアに内視鏡が嵌頓した症例を報告する。症例：75 歳男性で便潜血陽性精査目的に下部消化管内視鏡を施行した。内視鏡が下行結腸に到達した際，患者は突然の左下腹部痛を訴えた。腹部 CT を施行したところ，左鼠径ヘルニア嵌頓を認め，ヘルニア内容は内視鏡が挿入されている S 状結腸であった。保存的対応が不可能であり，緊急手術を施行した。術中所見では左鼠径ヘルニアに内視鏡とともに S 状結腸が嵌頓していた。左鼠径ヘルニア嚢と S 状結腸が癒着していることが，原因と考えられた。S 状結腸の嵌頓を解除後，メッシュを使用し，ヘルニア手術を行った。結語：鼠径ヘルニア嵌頓は下部消化管内視鏡の際，稀な合併症ではあるが，鼠径ヘルニアを併存している患者ではリスク因子と考えられるため，問診と身体所見が重要と考えられた。

キーワード：鼠径ヘルニア，嵌頓，下部消化管内視鏡

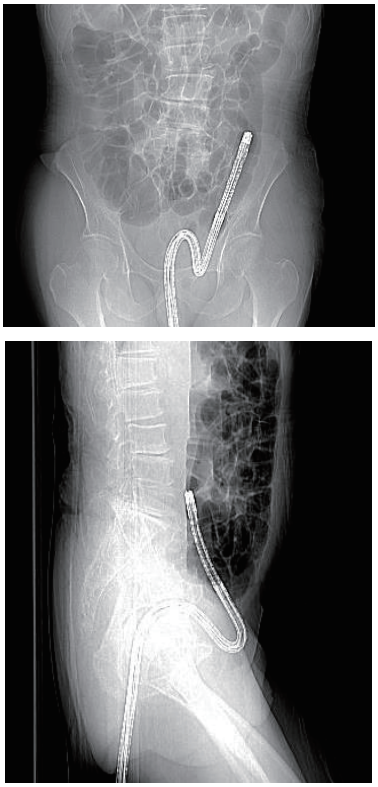
(Received 15 June, 2017 ; accepted 5 October, 2017)

Background

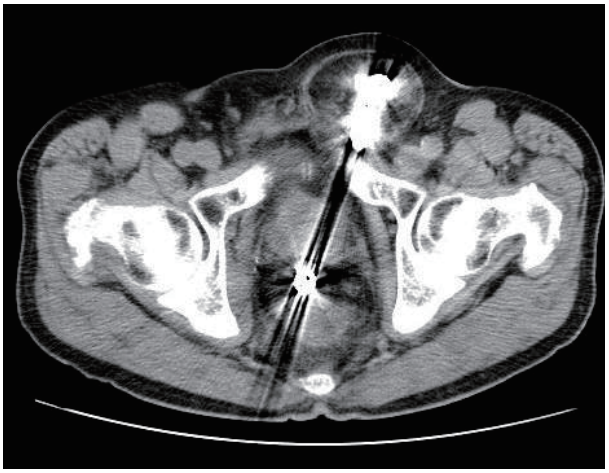
Recently, colonoscopy has become a useful procedure for diagnosis and treatment because of the improvement of its knowledge, skills, and in itself. Otherwise, the serious complication is perforation, of which the rate is approximately 0.2-2 percent[1]. Furthermore, lesser complications are reported as cardiovascular and respiratory disorders, and abdominal distention which causes nausea and vomiting [2-3]. When we perform colonoscopy or endoscopic polypectomy, we should be careful of such complications. Incarceration of the colonoscope within the inguinal hernia, including sigmoid colon, is an unusual complication of colonoscopy. We report that we performed an emergency operation for the incarcerated left inguinal hernia to remove the colonoscope and treat the left inguinal hernia.

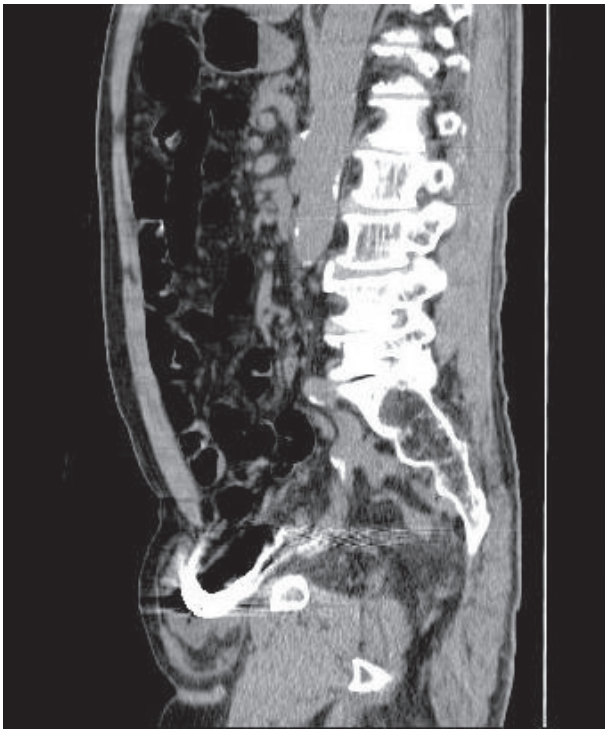
Case presentation

The patient was a 75-year-old Japanese male who underwent colonoscopy because of the positive fecal occult blood test. The patient had had the usual oral bowel preparation consisting of 2 liters of polyethylene glycol on the day before the examination. During the examination, when the colonoscope was inserted into the descending colon, of which length was about 60 cm, the patient was suddenly complaining of left lower abdominal pain. Then the colonoscope was resistant to not only advancing, but also withdrawing. Physical findings showed elevation on his left side groin and redness. An abdominal X-ray showed that the U-shaped loop of the colonoscope was seen incarcerated in the left inguinal hernia (Fig. 1). An abdominal CT showed that the colonoscope was incarcerated within the sigmoid colon by the left inguinal hernia (Fig. 2). We diagnosed the incarcerated colonoscope within the inguinal hernia of which content is colon. He received regular medication for hypertension. His familial medical histories included nothing of note. The presence of a left inguinal hernia was known several years ago but went untreated. A blood work-up was free of an abdominal finding, and biochemical test results for total bilirubin, liver enzymes, alkaline phosphatase, and serum creatinine, were all within normal ranges. The colonoscope was stuck and not able to be either pushed or removed. We decided to perform an emergency operation. Intraoperative findings were that the sigmoid colon, which was adherent with the hernia sac, was incarcerated left lateral inguinal fossa (Fig. 3). It was assumed that the sigmoid colon incarceration was due to the shape of the colonoscope loop and supply of air from the colonoscope. The sigmoid colon had not been injured by the colonoscope. There were not lesion considerated as the cause of the positive result of a fecal occult blood test by manipulation. We spread the hernia orifice out and gently reduced the sigmoid colon into the abdominal cavity, then repaired the hernia orifice using a Direct Kugel Patch and onlay mesh. The patient's postoperative recovery was uneventful, and he was discharged 7 days after surgery.

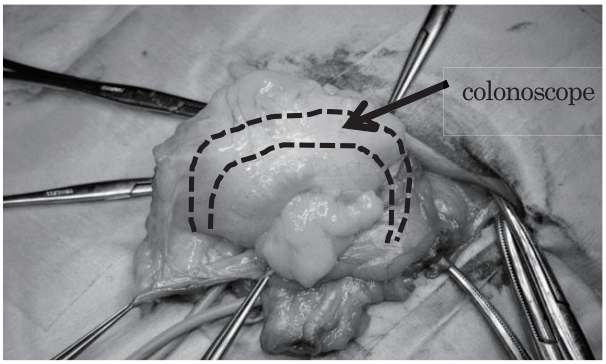


(Figure 1) Abdominal X-ray showed that the U-shaped loop of the colonoscope was seen incarcerated in the left inguinal hernia.





(Figure 2) Abdominal CT showed that there was some amount of colon gas, and that the colonoscope was incarcerated within the sigmoid colon, by the left inguinal hernia.



(Figure 3) Intraoperative findings showed that the sigmoid colon, which was adherent with the hernia sac, was incarcerated left lateral inguinal fossa when the hernia sac was opened.

Conclusion

Incarcerated inguinal hernia is a relatively major disease, which often requires emergency operation. The small intestine has a high percentage of becoming hernia content. It is relatively rare that the hernia content is the sigmoid colon in the case of left inguinal hernia. On the other hand, colonoscope incarceration is the extremely rare complication during colonoscopic examination. In the English literature, only 6 other reports [4-9] describe a colonoscope incarceration within a hernia sac (Table 1). The average age is 77.7 years old (73-83 years), and all patients were men, so that seems to be one of the risk factors. The sigmoid colons are incarcerated in all cases, not only within left side inguinal hernia (6 cases), but also within right side (1 case), which is interesting. Two ways for removing the colonoscope are performed: operative treatment and nonoperative treatment used by manual technique. 5 cases were removed by nonoperative treatment. On the other hand, there are 2 cases, including our case, in which an operation was performed. Walter A. et al. reported that incarceration of the colonoscope within the hernia sac is dictated not only by the size of the hernia orifice, but by the diameter and rigidity of the colonoscope. The hernia orifice must be large enough to allow the colonoscope to enter and exit. Further, the hernia sac must be of a size to allow a loop of the colonoscope to form within it. They indicated that patients with hernial defects of 3-6 cm are at the most risk of incarceration. It seems that it is the diameter of the circular arc of the colonoscope, depicting the U-shaped loop in the hernia sac, which has gone beyond the diameter of hernia orifice, which causes incarceration of the colonoscope. The diameter of the arc, when the colonoscope (OLYMPUS, PCF-Q260AI) we use becomes a U-shaped loop, is 10 cm. The hernia orifice seemed to be too small to allow the arc removal. They also reported the "Pulley" technique of removal as a nonoperative

(Table 1) Summary of reported cases of colonoscope incarceration within inguinal hernia

No.	Author, Year	Age	Sex	Side	Achievement of scope	Hernial content	Perforation	Treatment
1	Koltun et al., 1991[4]	76	M	Right	Descending	Sigmoid colon	—	Non operation
2	Yamamoto et al., 1994[5]	83	M	Left	70 cm	Sigmoid colon	—	Non operation
3	Saunders, 1995[6]	73	M	Left	Descending	Sigmoid colon	—	Operation
4	C.S.Fan et al., 2007[7]	73	M	Left	60 cm	Sigmoid colon	—	Non operation
5	Kume et al., 2009[8]	81	M	Left	cecum	Small bowel	—	Non operation
6	Tanishima et al., 2012[9]	83	M	Left	Sigmoid	Sigmoid colon	—	Non operation
7	Our case, 2013	75	M	Left	Descending	Sigmoid colon	—	Operation

procedure. The technique is that in which the loop of the colonoscope within the hernia sac is firmly grasped between thumb and forefinger, along the inner edge of its curvature, while the colonoscope is being withdrawn at the anus. The technique enables tension to be kept on the loop and the scope removed one limb at a time, of which diameter is smaller than the size of hernial orifice. When performing the colonoscopic examination, we pay close attention to the hemorrhage and intestinal perforation. However, complication of our case was an unexpected event so we felt irritation at that time, and the patient did, also. The presence of an inguinal hernia is not a contraindication to the colonoscope. But we should deal with the possibility of incarceration within the hernial sac. Additionally this complication made things much uncomfortable for the patient against the colonoscopic examination. We learned that past history and physical examination are very important for the scopist because they can be put on the alert for potential risk, such as in this case. If the patient has inguinal hernia, hand compression inguinal hernia in the performing colonoscopy is one of the technique which made contribution to avoid the adverse.

Conflict of Interest Statement

We have no conflict of interest

Reference

1) Uno Y, Morita T. Colonic perforation and serosal tears associated with colonoscope. Lancet 1997; 349: 1888
2) Hunt RH. Towards safer colonoscopy. Gut 1983; 24: 371-375
3) Habr-Gama A, Waye JD. Complications and hazards of gastrointestinal endoscopy. World J Surg 1989; 13: 193-201
4) Koltun WA, Coller JA. Incarceration of colonoscope in an inguinal hernia. "Pulley" technique of removal. Dis Colon and Rectum 1991; 34: 191-193
5) Yamamoto K, Kadakia SC. Incarceration of colonoscope in an inguinal hernia. Gastrointest Endosc 1994; 40: 396-397
6) Saunders MP. Colonoscope incarceration within an inguinal hernia: a cautionary tale. Br J Clin Pract 1995; 49: 157-158
7) Fan CS, Soon MS. Colonoscope incarceration in an inguinal hernia. Endoscope 2007; 39: E185
8) Kume K, Yoshikawa I, Harada M. A rare complication: incarceration of a colonoscope in an inguinal hernia. Endoscopy 2009; 41: E172
9) Tanishima H, Shono Y, Sakaguchi S, et al. Incarceration of a colonoscope in an inguinal hernia and laparoscopic findings. Dig Endosc 2012; 24: 486