

Pneumoretroperitoneum and pneumomediastinum after Stapled Anopexy Is conservative treatment possible?



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Pneumoretroperitoneum and pneumomediastinum after Stapled Anopexy. Is conservative treatment possible?

INTRODUCTION: *Stapled anopexy is considered the gold standard in treating haemorrhoidal disease associated to mucosal prolapse, but severe complications have been described. Among these, a minimal anastomotic leakage may lead to gas spreading into surrounding soft tissues.*

CASE REPORT: *We report the case of a 61 year old male who developed pneumoretroperitoneum and pneumomediastinum two days after a Stapled Anopexy. CT scans showed a minimal leakage with no abscess. The patient was successfully treated by bowel rest, antibiotics and total parenteral nutrition, avoiding surgical approach.*

CONCLUSION: *A minimal anastomotic leakage following Stapled Anopexy, when leading to air diffusion into soft tissues and not associated to abscess or peritonitis may be treated conservatively avoiding ileostomy or colostomy.*

KEY WORDS: Anastomotic leakage, Pneumoretroperitoneum, Stapled Anopexy

Introduction

Stapled anopexy (SA) is considered the gold standard for surgical treatment of haemorrhoids associated to mucosal prolapse, mainly because of less post-operative pain and faster healing^{1,4,5,7}.

Complications following SA range from 20 to 36%⁸⁻¹⁰. Major complications are rare but have also been observed,

including severe bleeding, pelvic haematoma, persistent post-operative pain and recto-vaginal fistula¹¹⁻¹³. Incidence of severe complications after SA could be higher than expected, probably due to some author's fear of writing case reports with legal consequences or because some journals are reluctant to publish single case reports¹⁴.

Life-threatening cases due to massive bleeding, sepsis of pelvic origin or diffuse peritonitis have been reported^{15,16}, the latter two generally requiring an enterostomy¹⁷.

Severe sepsis occurs in less than 0,1% of cases¹⁸⁻²⁰. Faucheron et al¹⁴ analyzed 29 articles dating from 2000 to 2011 and reported 40 cases of peritonitis following rectal perforation after SA, 35 of which requiring a colostomy and 30 at risk of life; in this case, mortality rates may reach 10%.

We report the case of a successful non-surgical management of pneumoretroperitoneum, and pneumomediastinum after SA.

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Case Report

A 61 year old male patient underwent SA with a CPH34-HV stapler for a large 360° haemorrhoidal prolapse.

Ultra-short term prophylaxis with cephazolin and metronidazole was given. No adverse events took place during the operation and the early postoperative period was normal. The patient was discharged on the first postoperative day, in good general conditions and normal abdominal findings. Digital rectal examination showed a continuous anastomosis without bleeding.

Two days later the patient came to our emergency ward complaining fever (38.5° C), chills and general malaise

without abdominal pain. Bowel movements were present, a moderate peritoneal reaction could be elicited; rectal examination showed no macroscopic suture discontinuity or active bleeding.

Blood tests showed a neutrophilic leucocytosis (WBC 17.3000) and an elevated CRP (209 mg/L).

A chest and abdominal film reported subdiaphragmatic air and moderate pleural effusion (Fig. 1).

Basal CT scans showed air in the perirectal fat (Fig. 2a), in the retroperitoneum (Fig. 2b) and in the mediastinum, around the pericardium (Fig. 2c). The rectal suture presented minimal leakage without any abscess or pelvic haematomas.

The patient was admitted and received intravenous therapy with Piperacillin/Tazobactam 4,5 gr three times a day and metronidazole 500 mg four times a day. Complete fasting with Total Parenteral Nutrition (TPN) was also adopted.

During the next few days, general conditions, abdominal findings and blood test improved. A new CT-scan 48 hours later showed stable radiologic findings and after 5 days the patient had no fever.

Antibiotics were stopped and feeding by mouth gradually resumed. The patient was discharged after 8 days of therapy, when a CT scan reported reduction of pneumoperitoneum and pneumomediastinum (Fig. 3).

A final CT scan 4 months later (Fig. 4) showed no air in the soft tissues and digital rectal examination showed no stenosis.



Fig. 1: X-ray: bilateral sub-diaphragmatic air.



Fig. 2: CT scan: A) air in the perirectal fat, B) pneumoretroperitoneum, C) pneumomediastinum.



Fig. 3: CT scan after 5 days: soft tissues air reduction.

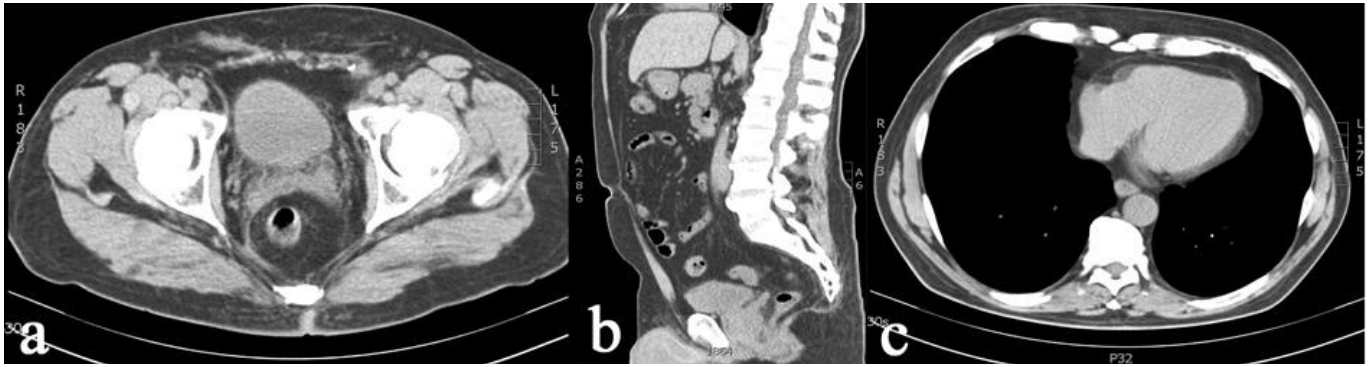


Fig. 4: CT scan after 4 months: absence of air in the soft tissues.

Discussion

Life threatening sepsis has been reported as a possible postoperative complication in every surgical procedures proposed for haemorrhoids treatment¹⁵.

Although SA has many advantages, it also carries a higher incidence of septic complications (rate 1.75 per year vs 0.6 for rubber band ligation, 0.2 for sclerotherapy and 0.25 for haemorrhoidectomy)¹⁵. This could be due to more attention being given to adverse events after this relatively recent technique¹⁴.

In rare cases, sepsis after SA is consequent to peritonitis due to a rectal perforation proximal to the anastomosis caused by the stapler's anvil. More often the cause is a leakage of the anastomosis¹⁴⁻¹⁶, with more serious complications if a deep Douglas pouch is included into the stapler resection²¹.

The dehiscence can have different etiologies. A full-thickness resection may include an excessive amount of tissue, making stapling more difficult. Bleeding from nearby vessels may lead to intraparietal or perirectal haematoma with secondary infection. Other rare causes include an excessive use of the DTC near the suture line, early anal sex or dilation of anastomotic stenosis¹⁴. Belief that major complications regarded less experienced surgeons has been challenged by Ravo, who pointed out how surgeons with over 25 accomplished procedures more often incur in complications¹⁸.

Gas diffusion consequent to rectal perforation may involve the peritoneal cavity, the retroperitoneum and the mediastinum¹⁴.

Pneumomediastinum seldom occurs as a complication of some other abdominal diseases¹⁵: mainly primary perforation of the gastroenteric tract²², from traumatic events (involving the perineum or the abdomen from foreign body insertion^{23,24} or iatrogenic causes). Iatrogenic retroperitoneum has been reported after various procedures, but mainly following endoscopy^{25,26}. Amongst the surgical causes haemorrhoidectomy²⁷, SA²⁸⁻³¹ and STARR²¹ are reported.

A pneumomediastinum after SA is an exceptional event: previous literature reports an overall of 5 cases^{21,29-31,32}.

Myrzayan et al.³³ hypothesized the possibility that gas from rectal lumen may escape through the intersphincteric space and reach the fascial plane formed by the superior border of the pelvic diaphragm and the levator ani; then it may reach the retroperitoneum and sometimes the peritoneal cavity through the mesenteric fold or along the mesenteric vessels. Air would enter the thorax through a congenital diaphragmatic defect, the periesophageal areolar tissue or the caval horifice. Penetration into the pleuric cavity and pericardium seems to happen through the pericardial reflection over the pulmonary veins and the aorta.

Gas from the digestive tract may cause severe sepsis³⁴ because of fermentation by anaerobic bacteria such as *Bacteroides Fragilis*²⁸. Air spreading from endoscopic procedures may be even more dangerous due to its high pressure: some cases of hypertensive pneumothorax requiring immediate drainage have been described³⁵.

In case of pneumoretroperitoneum and pneumomediastinum after SA most surgeons adopted an aggressive therapeutic management, usually performing a colostomy in order to prevent or resolve the sepsis.

Only two cases of successful conservative treatment for retropneumoperitoneum following SA are reported in literature³⁰⁻³¹, because air-spreading occurred without severe septic signs.

Also in our case we adopted a conservative treatment (fasting, TPN, intravenous antibiotics) and avoided a colostomy because of some criteria:

1. Accurate checking of the suture by digital rectal examination: the dehiscence must be undetectable or only few millimeters wide;
2. Close follow-up regarding vital signs including fever, abdominal findings and blood tests, which must show a favorable trend;
3. Sequential CT scan: during the first 5 days at least every 48 hours, in order to check the gas-spreading.

An anoscopy may be an incautious procedure if a dehiscence is suspected because the risk of wider dehiscence is high. In our opinion a low-pressure contrastographic enema is unnecessary.

Conclusions

Anastomotic leakage following SA can lead to retroperitoneum, pneumoperitoneum and pneumomediastinum.

In all cases where severe sepsis, peritonitis and macroscopic leakage of the suture are not present, a conservative treatment may be undertaken in order to avoid clinical, psychological and legal consequences of a temporary ileostomy or colostomy, which would be difficult to explain to the patient after simple surgery for haemorrhoids.

Patient selection must be careful with a very strict clinical and radiologic follow-up during the first days. After discharge from hospital, outpatient check is always mandatory in order to prevent anastomotic stenosis.

Riassunto

La stapled anopexy è considerata il gold standard nel trattamento della malattia emorroidaria associata a prolasso mucoso. In letteratura sono state descritte gravi complicanze. Tra queste, una minimo leakage anastomotico può portare ad un retroperitoneo e alla sepsi grave. Generalmente questi sono casi in cui il chirurgo opta per il confezionamento di una stomia escludente (associato eventualmente al drenaggio di eventuali ascessi). Tuttavia in alcuni casi è possibile una gestione conservativa. In questo lavoro, riportiamo il caso di un uomo di 61 anni che ha sviluppato pneumoperitoneo e pneumomediastino due giorni dopo una mucoprolassectomia. Il paziente è stato trattato con successo mediante digiuno, antibiotico terapia e nutrizione parenterale totale, evitando un approccio chirurgico. Il caso clinico è corredato da una revisione della letteratura precedente che riporta come siano pochissimi i casi simili già descritti.

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