

intracorporeal sutures, etc.¹ This experience was also considered positive by the young surgeons. We believe that continuing with this activity could shorten the individual learning curve for each professional² and avoid complications due to lack of experience.³ We believe that this second objective is as important as, or even more so than, the course itself and can boost surgical training in our country. In fact, there are those who support the evaluation of acquired skills. For these evaluations, virtual models as well as cadavers have been proposed, although human bodies are clearly superior.⁴ This assessment should be essential before initiating actual operations on patients.⁵

In summary, I would like to encourage surgical teams and universities in Spain to do all they can to be able to work with cadavers, not only for training in technical advances but also for initiating young surgeons in standard techniques. The benefits far outweigh the organisational difficulties, so this possibility should no longer be underutilised.⁶

To finish, I would once again like to thank the donors in acknowledgement of their selfless actions.

REFERENCES

1. Sharma M, Macafee D, Horgan AF. Basic laparoscopic skills training using fresh frozen cadaver: a randomized controlled trial. *Am J Surg.* 2013;206:23–31.
2. Diesen DL, Erhunmwunsee L, Bennett KM, Ben-David K, Yurcisin B, Ceppa EP, et al. Effectiveness of laparoscopic computer simulator versus usage of box trainer for endoscopic surgery training of novices. *J Surg Educ.* 2011;68:282–9.

3. Sharma M, Macafee D, Pranesh N, Horgan AF. Construct validity of fresh frozen human cadaver as a training model in minimal access surgery. *JSLs.* 2012;16:345–52.
4. Sharma M, Horgan AF. Comparison of fresh–frozen cadaver and high-fidelity virtual reality simulator as methods of laparoscopic training. *World J Surg.* 2012;36:1732–7.
5. Sinitsky DM, Fernando B, Berlingieri P. Establishing a curriculum for the acquisition of laparoscopic psychomotor skills in the virtual reality environment. *Am J Surg.* 2012;204:367–76.
6. Lloyd GM, Maxwell-Armstrong C, Acheson AG. Fresh frozen cadavers: an under-utilized resource in laparoscopic colorectal training in the United Kingdom. *Colorectal Dis.* 2011;13:e303–4.

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Is Pneumomediastinum and Cervical Emphysema a Sign of Poor Prognosis in Colorectal Anastomosis Leakage? ☆



¿Es el neumomediastino y enfisema cervical un signo de mal pronóstico en la dehiscencia de anastomosis colorrectal?

Dear Editor,

We have read with interest the article by Dr. de la Plaza Llamas et al.¹ about pneumomediastinum and cervical emphysema as initial signs in colorectal anastomotic dehiscence. Recently, we had the opportunity to treat a similar case, and its exceptional nature has made us inclined to share our experience and to comment on some details of the case in question.

The patient is an 85-year-old male who was being studied for iron-deficiency anaemia and was diagnosed with sigmoid

adenocarcinoma. Thoracoabdominal CT scan showed no evidence of metastatic disease, with a reported radiological stage of T₂N₀M₀. He was treated by a laparoscopic approach, involving sigmoidectomy with mechanical end-to-end colorectal anastomosis. The patient progressed favourably but presented marked supraclavicular cervical emphysema on the 4th day post-op, which extended to the upper extremities, thorax and abdomen, with no associated symptoms of abdominal pain. Thoracoabdominal CT scan demonstrated important pneumomediastinum and cervical emphysema (Fig. 1A and B), moderate abdominal pneumoperitoneum in the supramesocolic compartment (Fig. 1C), 2 minimal bubbles

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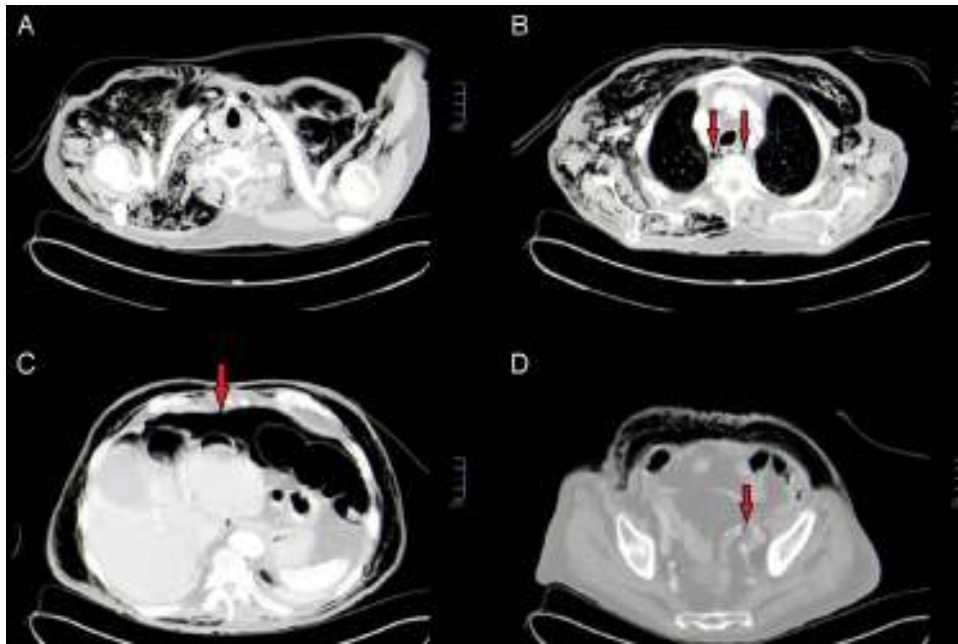


Fig. 1 – (A) Axial CT image showing anterior and posterior supraclavicular cervical emphysema; (B) axial CT image showing pneumomediastinum (arrows); (C) axial CT scan showing moderate pneumoperitoneum (arrow); (D) axial CT image showing a minimal extraluminal bubble in the vicinity of the colorectal anastomosis (arrow).

in the vicinity of the colorectal anastomosis (Fig. 1D) and no presence of liquid or other alterations. A new laparoscopic procedure detected a punctiform dehiscence at the anterior side of the colorectal anastomosis, evidence of which was seen with an air test, although there was no presence of associated peritonitis. The anastomosis was resected and a new mechanical end-to-end colorectal anastomosis was created. During the postoperative period, the patient evolved favourably, with spontaneous resolution of the emphysema after having received no specific treatment. The patient was discharged 7 days after the reoperation.

Pneumomediastinum and cervical emphysema are uncommon signs at the onset of colorectal anastomosis dehiscence,^{1,2} although they have also been observed in cases of perforated diverticulitis³ and perforation after endoscopic polypectomy.⁴ As indicated in the literature, a delayed diagnosis determines the prognosis.² In our case, the diagnosis occurred in the first few days post-op, which provided for early treatment and avoided the development of peritonitis and associated morbidity, at which time we were able to construct a new anastomosis. In the cited case,¹ the fact that dehiscence was not diagnosed until 11 days after surgery (because the patient presented no symptoms during hospitalisation), lengthened the hospital stay to 60 days, with what we can only assume was important postoperative morbidity, and made it impossible to perform an anastomosis during the operation.

We would like to emphasise that, although pneumomediastinum and cervical emphysema can be the first signs of presentation of colorectal anastomosis dehiscence, any delay in diagnosis and intraabdominal conditions that are encountered will determine the therapeutic approach and prognosis.

This should not necessarily mean a severe condition associated with high morbidity and prolonged hospital stay.

REFERENCES

1. De la Plaza Llamas R, Ramia Ángel JM, García Amador C, López Marcano AJ. Neumomediastino y enfisema cervical como comienzo de dehiscencia de anastomosis colorrectal. *Cir Esp.* 2015;93:e81.
2. Souche R, Bouyabrine H, Navarro F. Subcutaneous emphysema of thorax, neck and face after elective left colectomy: a case report. *Int J Surg Case Rep.* 2013;4:489–92.
3. Sarrugarte Lasarte A, Marín Ortega H, Prieto Calvo M, Fernández del Val JF. Pneumomediastino y enfisema subcutáneo cervical por diverticulitis aguda perforada colónica. *Cir Esp.* 2014;92:e55.
4. Ochando F, Martín JG, Torralba JA, Aguilar J, Aguayo JL. Enfisema subcutáneo cervical y neumomediastino tras polipectomía endoscópica de colon. *Cir Esp.* 2000;68:516–7.

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