Pneumothorax, pneumoperitoneum, mediastinal emphysema and cutaneous emphysema following colonoscopy, case report

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Abstract

Case description: female patient in the fifth decade of life without significant comorbidities, presenting pneumothorax, pneumoperitoneum, mediastinal emphysema and cutaneous emphysema after colonoscopy.

Clinical findings: patient presented dyspnea, chest pain, subcutaneous emphysema in thorax and neck. In addition, the admission images showed pneumothorax, pneumoperitoneum, mediastinal emphysema and cutaneous emphysema.

Treatment and results: after the results of the images, the patient underwent urgent bilateral thoracotomy, which after such management presented a satisfactory evolution with resolution of the clinical picture.

Clinical relevance: the low incidence of pneumothorax, pneumoperitoneum, mediastinal emphysema and cutaneous emphysema after intestinal perforation as a consequence of iatrogenic colonoscopy is evidenced in the medical literature. It is important to recognize it because clinicians may not be familiar with this entity at the beginning.

Key words: spontaneous pneumothorax, pneumoperitoneum, mediastinal emphysema, subcutaneous emphysema, colonoscopy, adverse event (DeCS).

Resumen

Descripción del caso: paciente femenina en la quinta década de la vida sin comorbilidades significativas, presenta neumotórax, neumoperitoneo, enfisema mediastínico y enfisema cutáneo posterior a colonoscopia.

Hallazgos clínicos: paciente presentó disnea, dolor torácico, enfisema subcutáneo en tórax y cuello. Además de evidenciar en las imágenes del ingreso de neumotórax, neumoperitoneo, enfisema mediastínico y enfisema cutáneo.

Tratamiento y resultados: posterior a los resultados de las imágenes, se llevó al paciente a toracotomía urgente bilateral, la cual posterior a dicho manejo presenta una evolución satisfactoria con resolución del cuadro clínico.

Relevancia clínica: la baja incidencia de neumotórax, neumoperitoneo, enfisema mediastínico y enfisema cutáneo posterior a una perforación intestinal como consecuencia de una iatrogenia en una colonoscopia se evidencia en la literatura médica. Presenta una importancia en su reconocimiento pues los clínicos al inicio podrían no estar familiarizados con esta entidad.

Palabras claves: neumotórax espontáneo, neumoperitoneo, enfisema mediastínico, enfisema subcutáneo, colonoscopia, evento adverso (DeCS).

Introduction

Colonoscopy is a widely used study in the clinical and outpatient setting in Colombia, since it is mainly used as a screening study for colon cancer due to its cost-benefit value in the medium-risk population for this pathology (1). This serves to infer the high demand for this procedure.

As mentioned in the previous paragraph, adverse events and complications of colonoscopies increase. In a study carried out in Argentina in 2019, the most frequent complications mentioned were intestinal perforations and lower digestive tract hemorrhages, which do not exceed 1%, in addition to systemic complications such as cough, tachycardia, headache, vomiting, allergy, atrial fibrillation (2). Lastly, among the complications, pneumothorax, pneumoperitoneum, mediastinal and subcutaneous emphysema are very infrequent, mentioned only in case reports (3-5).

The objective of the present case is to make a report to the medical literature on some of the infrequent complications following colonoscopy such as pneumothorax, pneumoperitoneum, mediastinal emphysema and subcutaneous emphysema. In addition, the unconfirmed suspicion of perforation of the gastrointestinal tract during colonoscopy is highlighted, which highlights the importance of this case.

Ethical considerations

The authors declare that this article contains no personal identifiable information about the patient and that informed written consent was obtained from the patient for the publication of this case report and accompanying images.

Case description

A 41-year-old female patient with a history of irritable colon and rectal polyp, in addition to a surgical history of appendectomy and supraumbilical herniorrhaphy, which were performed more than two years ago. Due to the history of rectal polyp, a colonoscopy was requested in an outpatient setting to rule out additional pathological processes. After the procedure, the patient presented dyspnea and chest pain, which she did not immediately consult the emergency room because it was bearable, according to the patient.

Five days after the onset of symptoms and the colonoscopy, the patient consulted the emergency department for exacerbation of symptoms. On admission, the patient was hemodynamically stable with dyspnea and chest pain, and initial laboratory tests were requested. Arterial blood gases report uncompensated respiratory alkalosis and mild hypokalemia, mild anemia, in addition to a chest CT scan showing bilateral pneumothorax, mediastinal and subcutaneous emphysema, and suspected pneumoperitoneum (Figure 1 and 2).

Figure 1. Coronal computed tomography of the thorax.

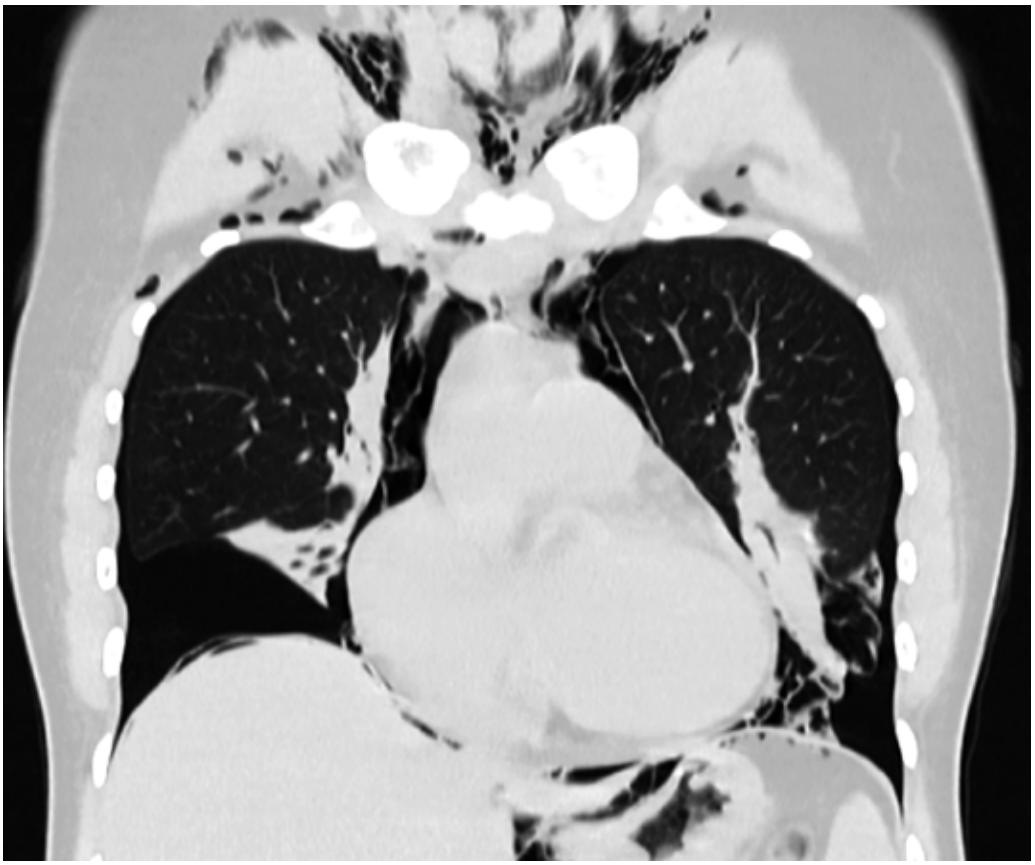
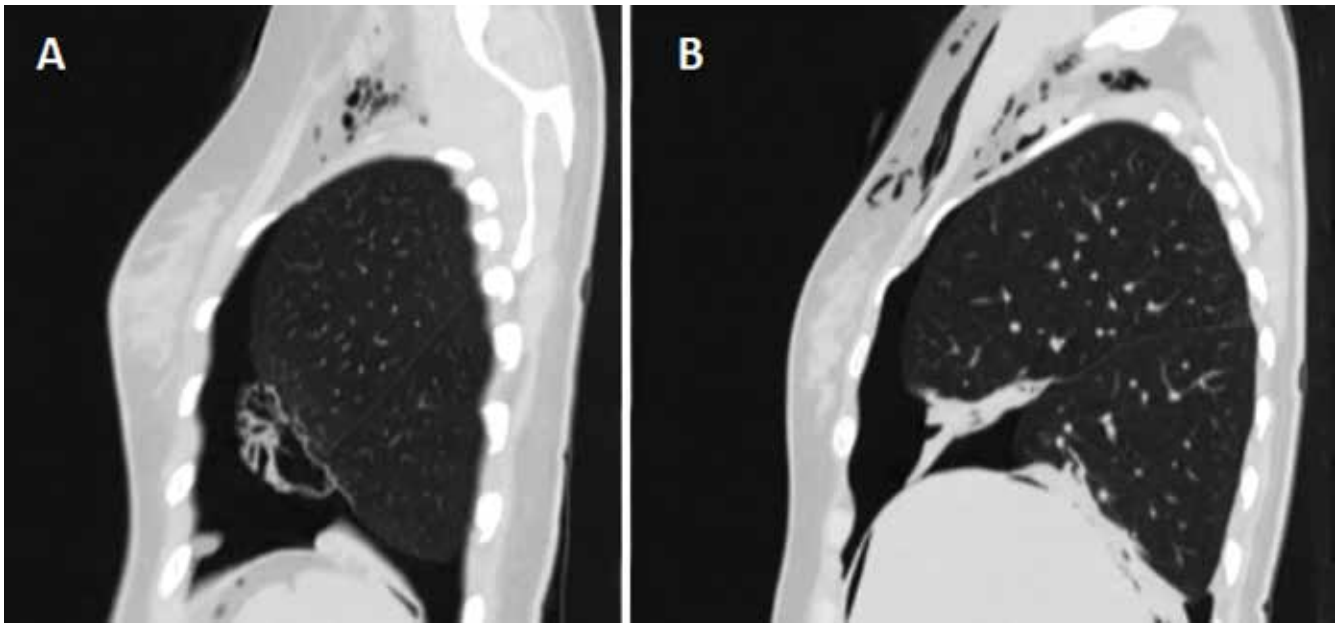


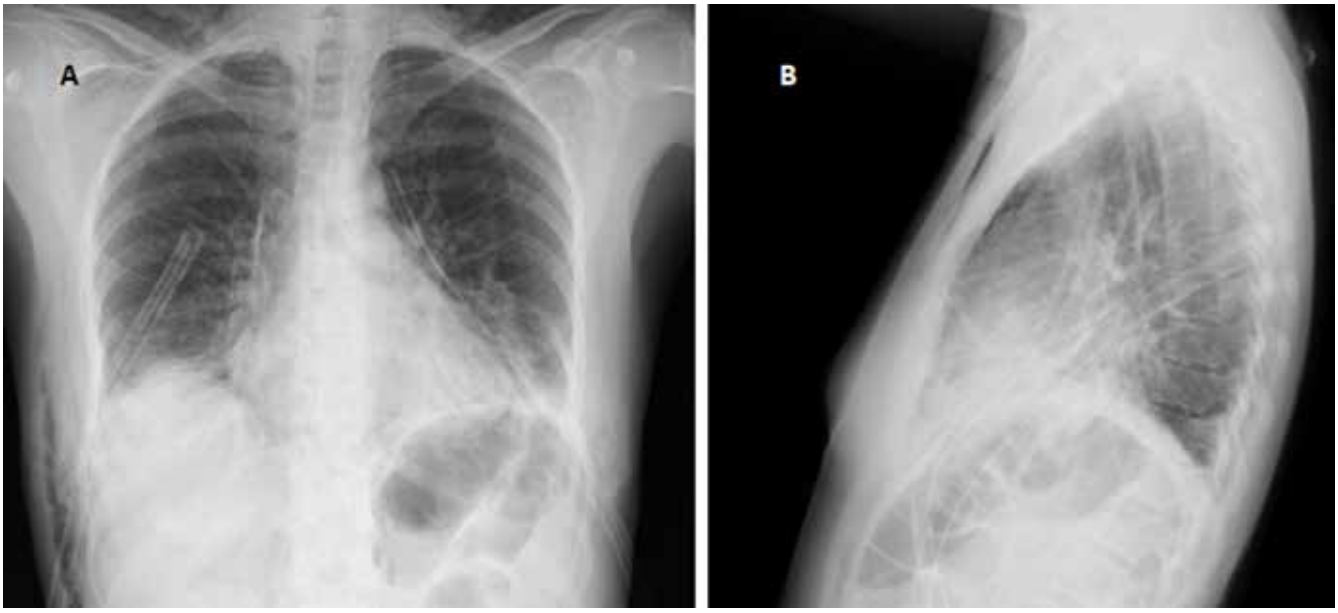
Figure 2. Chest computed tomography sagittal section of the left lung (A) and right lung (B).



The official report of the radiology specialist was: “bilateral pneumothorax on the right right side, causing atelectasis of the middle lobe, as well as of the anterior segment of the lower lobe, and on the left side, causing atelectasis of the lower lingula, which would be in approximately 40% and 30% right and left, respectively. In addition, mediastinal emphysema is identified, extending from the esophago-gastric junction to the peri-gastric area, and in the thoracic operculum to the bilateral supraclavicular area and to the anterior chest wall”.

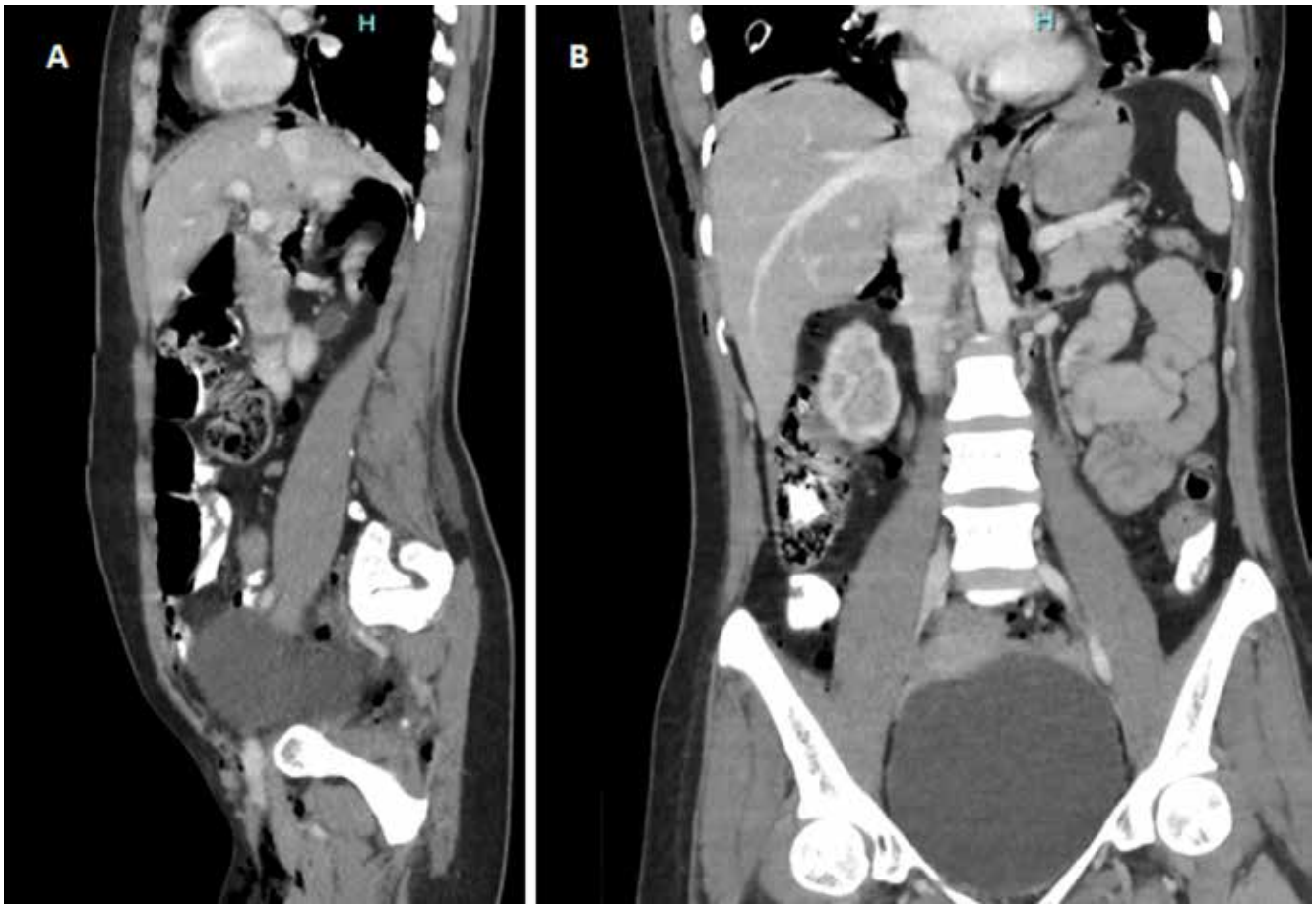
After diagnosis, the patient was taken to bilateral thoracotomy with immediate improvement of symptoms (figure 3)

Figure 3. Anteroposterior (A) and lateral (B) chest X-ray.



After the placement of the chest tubes, the patient was reevaluated with a CT scan of the abdomen and pelvis showing pneumoperitoneum (Figure 4), which was managed conservatively, but due to this finding a presumptive diagnosis of micro perforation of the intestinal loop was made, which could explain the clinical picture.

Figure 4. Computed tomography of the abdomen and pelvis in coronal (A) and sagittal (B) views).



After three days of satisfactory evolution, the chest tubes were removed, and the patient showed no clinical signs of emphysema. Therefore, the patient was discharged with adequate evolution and ambulatory control without additional complications.

Discussion

Colonoscopy is widely accepted both for specific diagnoses and for screening in certain conditions (1). This could promote the increase of complications of the procedure such as intestinal perforation which has been catalogued as the most common complication without being high in incidence (2). As evidenced in this case, the patient with a possible microperforation presented a dissemination of the gas through the tissues until it exceeded the peritoneum and presented bilateral pneumothorax, mediastinal and subcutaneous emphysema.

There are studies where it is evidenced that the increase of morbidity during and after colonoscopy is proportional to the age of the patient, evi-

dencing high morbidity in patients older than 70 years, which leaves doubt since the patient is young and without significant morbidities (6).

The diagnostic approach of this entity that we evidenced in the case is initially clinical, since the patients present clear immediate symptoms and others after the evolution of the picture. In addition, as a Gold Standard to clarify the diagnosis, computed tomography with multiphasic contrast plays a fundamental role, being also the guide for the definitive therapeutic management and prediction of morbidity (7).

Finally, it is worth mentioning that therapeutic management could have been performed at first, but the patient's tolerance prevented earlier detection. Likewise, the case showed an adequate evolution of the patient with total resolution of the pneumothorax, pneumoperitoneum, subcutaneous or mediastinal emphysema without additional complications.

The value of the clinical case lies in the low number of cases of this entity, since its incidence as intestinal perforation is less than 1% (2), and likewise the complication in the thoracic cage and subcutaneous is lower. Therefore, in clinical practice these complications should be known, and these entities should not be overlooked, although the safety of colonoscopy is still high in comparison to the percentage of morbidity (8).

Conclusions

Recognition of potential procedural complications is essential for the proper approach to these entities, and although colonoscopy complications are rare, they present considerable morbidity.

Acknowledgments

The authors would like to thank the Los Nevados Clinic in the city of Pereira and the Steward family for the research space.

Financing: Self-funded

Conflicts of interest: None

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