



Case Report

Massive post-traumatic neglected diaphragmatic hernia revealed by necrotizing pancreatitis, A case report according scare guidelines

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1. Introduction

Acute pancreatitis is considered among the most frequent gastrointestinal pathologies motivating consultation in the USA [1], and the diaphragmatic hernia is a very rare etiology of this affection. This diaphragmatic hernia complicates approximately 5% of abdominal trauma with respiratory repercussions and can become fatal in the event of digestive constriction.

As indicated in SCARE guidelines [2], we report a Case of a young man having as antecedent an old neglected abdominal trauma and admitted because of left chest pain. We concluded to necrotizing pancreatitis secondary to a huge hernia of the diaphragmatic cupola with the migration of several digestive organs without digestive constriction.

The Case study of this work is very rare; only 9 similar cases were reported in the literature [3]; and is characterized by an atypical chest presentation of acute pancreatitis and an unusual etiology consisting of a post-traumatic diaphragmatic hernia.

2. Case presentation

The patient a 26-year-old young male patient from Morocco with an average socioeconomic status and no reported alcohol or tabacco use. He had an history of an abdominal trauma 5 years ago at the left flank. It was not explored and thus not followed as being asymptomatic without

any radiological exploration with an episode of transient jaundice.

He presented to the emergency department with chest pain that had progressed for four days without functional respiratory signs and resistant to the first-level analgesic treatment.

A standard biological assessment was requested initially returning to normal with a chest X-ray showing digestive clarities in the thoracic area. A CT scan which was requested initially to rule out a strangulated diaphragmatic hernia showed a mass migration of the duodeno-pancreatic of the colon, stomach, and of spleen into the thoracic area with necrotizing pancreatitis explaining the chest pain as shown in Fig. 1.

We completed our medical file with a biological assessment which showed that the lipasemia size is 16 times bigger than the average, and an exploration of the respiratory function which revealed a restrictive syndrome. After thorough discussion with the patient and consultation with a multidisciplinary health team, a surgical exploration operation was to be done after six weeks from the acute pancreatitis phase.

This exploration was carried out under general anesthesia by the head of general surgery who had more than 20 years of experience. It started initially under celioscopy method and it showed a left diaphragmatic hernia measuring 08 cm with the migration of the stomach, the colon, the spleen, and duodeno-pancreatic block complicated by the collapse of the left lung.

As a laparoscopic reduction was impossible because of the multiple adhesions, a midline laparotomy was performed to reduce the organs

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intra-abdominally with diaphragmatic prosthesis and double thoracic and abdominal drainage (Fig. 2).

The postoperative follow-up was normal without any complications. The patient who tolerated well the surgery had several sessions of physical rehabilitation and respiratory physiotherapy. The discharge from the hospital was made six days after the operation. Our patient returned to intense physical activity within 6-months period and his follow-up examination showed a normal respiratory function.

3. Discussion

The incidence of acute pancreatitis is increasing [1] with a very high mortality rate in severe forms [4]. The diagnosis of this medical condition is based on a bundle of clinical, biological and radiological arguments [5]; and becomes very difficult with atypical clinical pictures or following certain very rare etiologies such as diaphragmatic hernia.

We present in this report a very exceptional Case; only 9 other similar cases were reported in the literature [3]; of pancreatitis secondary to a hernia of the diaphragmatic cupola in a young patient due to an old neglected abdominal trauma. The migration of duodeno-pancreatic block, the colon, the stomach and the spleen into intrathoracic caused the left lung was collapsed and the occurrence of acute pancreatitis causing left hemi-thoracic pain allowed the diagnosis of this hernia.

Jaundice which was transient in our patient can be explained by the torsion of the biliary tree [2] and pancreatitis due to the diaphragmatic dome hernia. This may be because by a torsion of the parenchyma and pancreatic duct or vascular stretching [6]. The hernia resulting from an old neglected trauma has been the subject of several scientific publications in which it was reported that it caused a 5 % diaphragmatic involvement. In this Case, the abdominal wound induced a passage of the abdominal organs into intra-thoracic [7] and rarely splenic rupture [8], gastric volvulus [9] as well as exceptionally an acute pancreatitis [3].

Those serious complications can be avoided by early diagnosis with computed tomography, which can detect diaphragmatic lesions, and more noticeably with MRI when available [10].

Therefore, the diagnosis of diaphragmatic involvement will allow surgical resolution by a thoracic [11] or an abdominal approach [12] in multidisciplinary care [13]. It consisted of an abdominal organs reduction and a reinforced diaphragmatic plasty by several sessions of physical rehabilitation and respiratory physiotherapy [14,15]. This rehabilitation helped our patient to cure from the restrictive syndrome and a return to home was possible during the fifth day.

4. Conclusions

This work reports a very exceptional complication of diaphragmatic rupture where a diagnosis of certain atypical forms of acute pancreatitis remains very difficult. We recommend the management and the treatment of any suspicion diagnosis of post-traumatic diaphragmatic

hernias. In other words, even in the absence of detectable clinical or radiological signs, we propose to consider diaphragmatic involvement in any patient suffering from abdominal trauma.

Patient perceptive

The procedure of surgery was explained to the patient with all advantages and possible complications. He agreed on the procedure and informed consent was taken from her.

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Ethics approval

Not applicable.

Consent of patient

Written informed consent was obtained from the patient for publication of this Case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author's contribution

Elmir Siham; Writing, review and editing of the manuscript.
Mohammed Noumairi, Jabi Rachid contributed for diagnose and treatment of the patient.

El Oumri Ahmed Amine, Fourtassi Maryam, Mohamed Bouziane: Review, Supervision and surgeons of the patient.

Registration of research studies

Our paper is a Case report; no registration was done for it.

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The authors declared no potential conflicts of interests with respect to research, authorship and/or publication of the article.

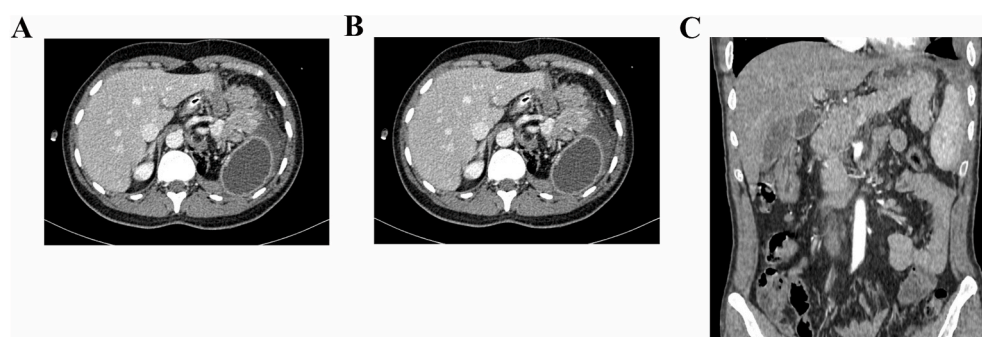


Fig. 1. The transverse sections (a and b) and the sagittal section (c) which shows the passage of the digestive contents in intra thoracic through the diaphragmatic hernia.

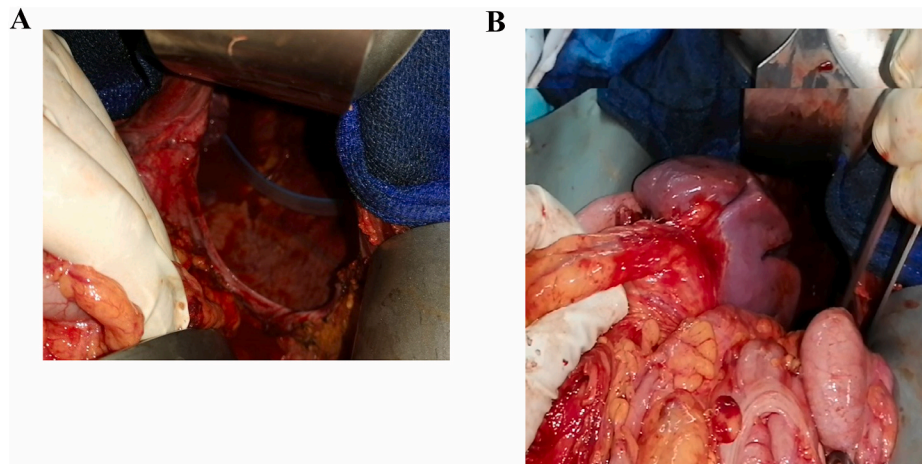


Fig. 2. Image (a) shows the diaphragmatic hernia after digestive reduction and thoracic drainage. Image (b) shows the reduction towards the abdominal cavity of the spleno-pancreatic block and the colon after careful dissection.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amsu.2021.102592>.

References

- [1] P.J. Lee, G.I. Papachristou, New insights into acute pancreatitis, *Nat. Rev. Gastroenterol. Hepatol.* 16 (8) (2019 Aug) 479–496, <https://doi.org/10.1038/s41575-019-0158-2>. PMID: 31138897.
- [2] R.A. Agha, T. Franchi, C. Sohrabi, G. Mathew, A. Kerwan, SCARE group. The SCARE 2020 guideline: updating consensus surgical case REport (SCARE) guidelines, *Int. J. Surg.* 84 (2020 Dec) 226–230, <https://doi.org/10.1016/j.ijssu.2020.10.034>. Epub 2020 Nov 9. PMID: 33181358.
- [3] T. Dinc, S.I. Kayilioglu, F. Coskun, Late onset traumatic diaphragmatic herniation leading to intestinal obstruction and pancreatitis: two separate cases, *Case Rep. Emerg. Med.* 2015 (2015) 549013, <https://doi.org/10.1155/2015/549013>. Epub 2015 Aug 24. PMID: 26380126; PMID: PMC4561313.
- [4] M. Portelli, C.D. Jones, Severe acute pancreatitis: pathogenesis, diagnosis and surgical management, *Hepatobiliary Pancreat. Dis. Int.* 16 (2) (2017 Apr) 155–159, [https://doi.org/10.1016/s1499-3872\(16\)60163-7](https://doi.org/10.1016/s1499-3872(16)60163-7). PMID: 28381378.
- [5] L. Boxhoorn, R.P. Voermans, S.A. Bouwense, M.J. Bruno, R.C. Verdonk, M. A. Boermeester, H.C. van Santvoort, M.G. Besselink, Acute pancreatitis, *Lancet* 396 (10252) (2020 Sep 5) 726–734, [https://doi.org/10.1016/S0140-6736\(20\)31310-6](https://doi.org/10.1016/S0140-6736(20)31310-6). PMID: 32891214.
- [6] S. Patel, G. Shahzad, M. Jawairia, K. Subramani, P. Viswanathan, P. Mustacchia, Hiatus hernia: a rare cause of acute pancreatitis, *Case Rep. Med.* 2016 (2016) 2531925, <https://doi.org/10.1155/2016/2531925>. Epub 2016 Mar 15. PMID: 27066077; PMID: PMC4811074.
- [7] S. Dahal, R. Koju, B. Shrestha, T. Karki, S. Bade, Spleen in the thorax: a Case report on traumatic diaphragmatic rupture, *Int. J. Surg. Case Rep.* 77 (2020) 664–667, <https://doi.org/10.1016/j.ijscr.2020.11.018>. Epub 2020 Nov 24. PMID: 33395869; PMID: PMC7708859.
- [8] E.T. Mindaye, A. Zegeye, Massive left hemithorax following left diaphragmatic and splenic rupture with visceral herniation: a Case report, *Int. J. Surg. Case Rep.* 78 (2021 Jan) 4–8, <https://doi.org/10.1016/j.ijscr.2020.11.144>. Epub 2020 Dec 2. PMID: 33310468; PMID: PMC7736767.
- [9] A. Aissa, A. Hassine, H. Hajji, Ben Salah K, Morjène A, Alouini R. Complication rare d'une hernie diaphragmatique gauche post-traumatique [Rare complication of a post-traumatic left diaphragmatic hernia], *Rev. Pneumol. Clin.* 69 (6) (2013 Dec) 331–335, <https://doi.org/10.1016/j.pneumo.2013.04.006>. French, Epub 2013 Sep 13. PMID: 24041975.
- [10] M. Bonatti, F. Lombardo, N. Vezzali, G.A. Zamboni, G. Bonatti, Blunt diaphragmatic lesions: imaging findings and pitfalls, *World J. Radiol.* 8 (10) (2016 Oct 28) 819–828, <https://doi.org/10.4329/wjr.v8.i10.819>. PMID: 27843541; PMID: PMC5084060.
- [11] S. Chlapoutakis, V. Vassileiadis, Huge post traumatic diaphragmatic hernia remained asymptomatic for 14 years. A Case report, *Indian J. Thorac. Cardiovasc. Surg.* 34 (4) (2018 Oct) 502–505, <https://doi.org/10.1007/s12055-018-0658-7>. Epub 2018 Mar 23. PMID: 33060925; PMID: PMC7525847.
- [12] F. Campos Costa, V. Cardoso, A.M. Monteiro, J. Guerreiro, Laparoscopic repair of an acute traumatic diaphragmatic hernia: clinical case, *Cureus* 12 (10) (2020 Oct 21) e11082, <https://doi.org/10.7759/cureus.11082>. PMID: 33224675; PMID: PMC7678761.
- [13] F. Wei, Y. Li, Successful management requiring multidisciplinary cooperation between seven departments for a large right-sided incarcerated traumatic diaphragmatic hernia: a Case report and review of literature, *AME Case Rep.* 4 (2020 Apr 30) 10, <https://doi.org/10.21037/acr.2020.03.02>. PMID: 32420533; PMID: PMC7221354.
- [14] H.C. Robinson, Respiratory conditions update: restrictive lung disease, *FP Essent* 448 (2016 Sep) 29–34. PMID: 27576233.
- [15] G.H. Markovitz, C.B. Cooper, Rehabilitation in non-COPD: mechanisms of exercise limitation and pulmonary rehabilitation for patients with pulmonary fibrosis/restrictive lung disease, *Chron. Respir. Dis.* 7 (1) (2010) 47–60, <https://doi.org/10.1177/1479972309348654>. Epub 2009 Oct 30. PMID: 19880656.