CASE REPORT

Case Report: A case of metastatic adenocarcinoma found during inguinal hernia repair [version 1; peer review: 3 approved with reservations]

Akram Rajput¹, Aatera Haq², Syed Mohammad Mazhar Uddin², Zeeshan Zafar¹, Uzair Yaqoob ³

¹Dow University of Health sciences, Karachi, Pakistan

²Civil Hospital, Karachi, Pakistan

³Jinnah Postgraduate Medical Centre, Karachi, Pakistan

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Abstract

Tumors found during hernia repair are rare. They may be intrasaccular (most commonly), saccular or extrasaccular, and they are usually primary. In this case report we present a case of metastatic adenocarcinoma (confirmed by biopsy) found inside the inguinal hernia sac. Following further investigation, primary tumor of the ileum and ileocecal junction was found. An elderly male presented with a history of bilateral inguinal swelling for a year, that had been asymptomatic initially, but had increased in size and was painful following prolonged activity. During laparoscopic hernioplasty a right sided inguinal hernia with nodules on peritoneum and omentum were observed. After taking a biopsy, repair of the hernia was performed. Carcinoembryonic antigen (CEA) and carbohydrate antigen (CA) 19-9 levels were raised. A computed tomography (CT) scan of the abdomen and chest showed a mass involving the distal ileum and the ileocecal junction, with lymphadenopathy, peritoneal carcinomatosis, as well as hepatic and lung metastasis. Surgery was not possible in this patient. A possible relation of an inguinal hernia with an ileal neoplasm was found in this patient. An irreducible swelling not causing any problems can be suspicious, which should be properly investigated to get to an early diagnosis.

Keywords

Adenocarcinoma, inguinal hernia, hernioplasty, metastases, incidental finding

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Approval Status

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1. Abdul-Wahed N. Meshikhes , King Fahad Specialist Hospital, Dammam, Saudi Arabia 2. Deepti M. Reddi , University of Washington Medical Center, Seattle, USA 3. Ruchika K. Goel , Medanta -The Medicity, Gurgaon, India			
Any reports and responses or comments on the article can be found at the end of the article.			

Corresponding author: Uzair Yaqoob (ozair_91393@hotmail.com)

Author roles: **Rajput A:** Conceptualization, Data Curation, Formal Analysis, Funding Acquisition, Investigation, Methodology, Project Administration, Resources, Software, Supervision, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Haq A:** Conceptualization, Data Curation, Formal Analysis, Funding Acquisition, Investigation, Methodology, Project Administration, Resources, Software, Supervision, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Uddin SMM:** Conceptualization, Data Curation, Formal Analysis, Funding Acquisition, Investigation, Methodology, Project Administration, Resources, Software, Supervision, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Zafar Z:** Conceptualization, Data Curation, Formal Analysis, Funding Acquisition, Investigation, Methodology, Project Administration, Resources, Software, Supervision, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Yaqoob U:** Conceptualization, Data Curation, Formal Analysis, Funding Acquisition, Investigation, Methodology, Project Administration, Resources, Software, Supervision, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing

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Introduction

Inguinal hernia sac tumors are a rare occurrence, with one study reporting only 0.07% of repairs being positive for metastatic tumors¹. Traditionally, hernia sac tumors are classified as intrasaccular, saccular and extrasaccular, based on the anatomical relationship of the tumor to the hernia sac^{2,3}. Intrasaccular tumors are one the most frequent type. They generally consist of primary tumors of organs lying within the hernia sac, such as cancers of colon, bladder, and metastatic neoplasms involving the omentum. Tumors that extend into the hernia sac by way of peritoneal involvement are classified as saccular and include, among others, primary mesothelioma and peritoneal metastasis from the intra-abdominal organs. When the tumor is within the hernia defect but lies outside the hernia sac, it is classified as extrasaccular. Examples include metastatic involvement of inguinal lymph nodes²⁻⁴. In this case report we present a case of metastatic growth that was found inside the inguinal hernial sac, later confirmed by histopathology to be metastatic adenocarcinoma. Post-operative workup revealed the primary tumor to be an adenocarcinoma involving the distal ileum as well as the ileocecal junction.

Case presentation

A 57-year-old man, with no known comorbid, from Karachi, Pakistan, was admitted to the Civil Hospital, Karachi, Pakistan, in November 2017, with a history of bilateral inguinal swelling that had begun a year prior to presentation, that had been small and inconsequential initially, but had recently grown larger and would become painful during prolonged standing and walking. In last three weeks prior to admittance, the swelling would not reduce with lying down. On physical examination, he was found to have a bilateral, incomplete, non-reducible inguinal hernia. His baseline laboratory investigations were all within normal limits, and chest radiograph was unremarkable. The patient underwent a cardiac review and was declared fit for general anesthesia. He was scheduled for laparoscopic hernioplasty. Intra operative findings revealed white nodules on parietal peritoneum and the omentum, while only the right-sided inguinal hernia was observed. A biopsy was taken, and mesh repair was done on the right side. Histopathology of the biopsy showed metastatic adenocarcinoma. The patient was evaluated for an intra-abdominal neoplasm. Carcinoembryonic antigen (CEA) levels and carbohydrate/cancer antigen (CA 19-9) levels were sent and patient scheduled for an ultrasound scan (US) of the abdomen and pelvis, esophagogastroduodenoscopy (OGD), colonoscopy and computed tomography (CT) scan of the chest, abdomen and pelvis with contrast enhancement. The patient's CEA levels were 14.04 ng/ml (normal level <3.5 ng/ml) and CA 19-9 levels were 125.2 U/ml (normal level <27 U/ml). The only findings of the abdominal and pelvic ultrasound were hypo-echoic lesions in the liver. OGD showed antral gastritis and biopsies were taken which showed no evidence of malignancy. Colonoscopy showed rounded well-demarcated lesions measuring 1.5 cm seen in the cecum, multiple biopsies were taken. However, biopsy showed no evidence of malignancy. Computed tomography (CT) of abdomen and chest showed a mass involving the distal ileum and the ileocecal junction, with lymphadenopathy, peritoneal carcinomatosis, as well as hepatic and lung metastasis (Figure 1). The patient was considered inoperable and

Figure 1. Computed tomography scan of the abdomen (Axial view).

hence, no surgery was considered. The patient left against medical advice and no follow up was obtained.

Discussion

Malignant tumors presenting within inguinal hernias are a rare occurrence. Literature reveals less than 0.4 % of the excised hernia tissue shows microscopic evidence of neoplasia⁵. Among these the most common primary tumor associated with hernia sac metastasis is carcinoma of the colon^{2,5}. This case was unique as in our patient the neoplasm involved the small bowel (distal ileum) as well as the ileocecal junction. To our knowledge, there is no literature available which mentions a case of metastatic ileal/ileocecal junction neoplasm presenting as an inguinal hernia. In most cases of colon cancer presenting as an inguinal hernia one possible explanation for the occurrence of an inguinal hernia could be the increased intra-abdominal pressure, perhaps secondary to the intra-abdominal neoplasm, occurring especially in the elderly^{2,6}. For instance, obstructive colon cancer, massive tumors or tumors associated with ascites can lead to increased intra-abdominal pressures and result in an inguinal hernia. However, in our patient, there were no additional symptoms, indicating that other factors were involved.

Here we turn to the history the patient gave us on presentation. A patient's presenting complainant is an important factor and can raise suspicion of an underlying malignancy³. It has been suggested that a long-standing hernia, becoming acutely incarcerated has a greater chance of containing a tumor. Some authors have even gone so far as to say that any non-reducible mass in the inguinal canal, lacking an impulse, should raise concern for malignancy³. Furthermore, constitutional symptoms can also suggest the possibility of an underlying malignancy. In many such

cases, abdominal pain was the most frequent symptom present pre-operatively³. Of note in our patient is the history of acute incarceration, as the patient said that up till recently the swelling would reduce on lying down. Since the peritoneum is a common site of intra-abdominal metastasis, a hernia repair gives a good opportunity for the surgeon to perform a peritoneal biopsy, thereby providing an earlier diagnosis. Furthermore, due to reports of occult malignancies from histopathological examination of hernia sac, several authors have recommended routine microscopic examination of the hernia sac^{2,7}. However, other authors have reported histopathological examination in only selected cases². Several authors also suggest a routine fiberoptic sigmoidoscopy in patients presenting with a hernia, because of the coexistence of an inguinal hernia and colonic cancer^{2,8}.

Conclusion

In conclusion, our study showed that an inguinal hernia and ileum/ileocecal junction neoplasm can coexist together, especially in the elderly. In addition, we also reported that an irreducible

hernia can raise suspicion of metastasis and, the patient can be asymptomatic at the time of presentation. Despite the rare co-existence of hernia and malignancy, we still recommend routine microscopic histopathological examination in all suspicious cases, as this can lead to an earlier diagnosis, and if the patient is asymptomatic this can be the only means to determine an occult malignancy.

Consent

Written informed consent for publication of their clinical details and clinical images was obtained from the patient.

Data availability

All data underlying the results are available as part of the article and no additional source data are required.

Grant information

The author(s) declared that no grants were involved in supporting this work.

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Ruchika K. Goel

Medanta -The Medicity, Gurgaon, India

This is a case report of an elderly patient with a diagnosis of a metastatic adenocarcinoma in an inguinal hernia sac. The case report has outlined the clinical history along with preoperative investigations in detail. The discussion of the article clearly describes importance of history and the relevance of diagnostic biopsy. In the biopsy however, there is no mention of the immunohistochemistry markers performed (CK7, CDX2, VILLIN, CALRETININ etc). Also when small whitish nodules were seen on parietal peritoneum and omentum, a differential diagnosis of mesothelioma does arise. There is no mention of the differentials considered in the biopsy in this case which was reported as metastatic adenocarcinoma. This is of utmost importance as all the subsequent biopsies were negative. It would be nice to have more detailed hisopathological findings along with necessary histological pictures.

The article is brief and written well, however grammatical errors need to be corrected and submission of pictographs would further enhance the scientific evidence.

Is the background of the case's history and progression described in sufficient detail?

Yes

Are enough details provided of any physical examination and diagnostic tests, treatment given and outcomes?

Partly

Is sufficient discussion included of the importance of the findings and their relevance to future understanding of disease processes, diagnosis or treatment?

No

Is the case presented with sufficient detail to be useful for other practitioners?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Histopathologist.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Reviewer Report 04 November 2019

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Deepti M. Reddi

Department of Pathology, University of Washington Medical Center, Seattle, WA, USA

This is a good article which emphasizes further investigation and work-up of irreducible hernia before hernioplasty, especially in the elderly population for occult malignancy. It is noted that there is a biopsy specimen, which confirms metastatic adenocarcinoma. Later, it reports cecal biopsies showed no evidence of malignancy. If there are supporting immunohistochemistry (CK7, CK20, CDX2, Villin, SATB2, etc.) along with the primary biopsy, then it would be more convincing to justify the relationship between the hernia and an intestinal neoplasm.

There are many grammatical errors which need to be addressed before indexing. If there are any histology pictures then it will be more interesting.

Is the background of the case's history and progression described in sufficient detail?

Yes

Are enough details provided of any physical examination and diagnostic tests, treatment given and outcomes?

Partly

Is sufficient discussion included of the importance of the findings and their relevance to future understanding of disease processes, diagnosis or treatment?

Yes

Is the case presented with sufficient detail to be useful for other practitioners?

Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Gastroenterology.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Reviewer Report 12 July 2019

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Abdul-Wahed N. Meshikhes

General and Minimally Invasive Surgery, Department of Surgery, King Fahad Specialist Hospital, Dammam, Saudi Arabia

This case report summarizes the case of an elderly man presenting with inguinal hernia that became recently symptomatic. During laparoscopic repair, nodules were found in the sac. Biopsy revealed metastatic ileo-caecal adenocarcinoma. Whether to go ahead with the repair using a prosthetic mesh or no repair in such advanced metastatic disease is a matter of controversy. The present case is interesting as the primary cancer turned up to be an advanced ileo-caecal carcinoma.

I have the following comments:

1. I presume the procedure was done trans-abdominally i.e transabdominal preperitoneal (TAPP) approach. This needs elaboration.
2. Why there is no comment on the laparoscopic exploration of the abdominal cavity upon the discovery of the nodules? Was the primary seen laparoscopically especially as it was a right hernia which was repaired?
3. Why was clinically bilateral hernia found, but laparoscopically, only the right side was obvious?
4. It is worth including a figure of the laparoscopic view of the nodules.
5. Was the idea of sending the nodule for frozen section entertained?
6. Why was not a preoperative chest x-ray done, as the patient was elderly undergoing a laparoscopic abdominal procedure? If done, why were the metastatic lung nodules missed?
7. There was no mention of the abdominal examination. Also no mention whether the tumour was causing any obstructive symptoms or not?
8. I disagree with the authors' notion that "*acutely incarcerated hernia has a great chance of containing a tumor*". This is not supported by our daily surgical practice. However, it needs to

be emphasized that acute hernia incarceration in the elderly should raise suspicion.

9. I also find the suggestion of *"doing routine fiberoptic sigmoidoscopy in all patients presenting with hernia to exclude co-existence of inguinal hernia and colon cancer"* is an 'overkill'. I believe this should be selective and only if there is an indication or a clinical suspicion of co-existing colorectal cancer.
10. I agree with routine histopathological examination of the excised hernia sac.
11. The authors did not discuss the surgical approach recommended in such cases of metastatic nodule in the hernia sac when discovered during the repair. Will the surgeon go ahead with the repair or not? Is the use of a prosthetic mesh advisable or not?
12. The discussion is deficient on the literature review of similar cases especially that of metastatic intestinal/colorectal primary. It is worth listing such cases which were reported over the past 10 years in a table and whether they were discovered electively vs. emergency, open repair vs. laparoscopic, or mesh vs. no mesh, etc.
13. A spelling mistake in the 2nd paragraph of the Discussion: Complainant should be corrected to complaint.

Is the background of the case's history and progression described in sufficient detail?

Partly

Are enough details provided of any physical examination and diagnostic tests, treatment given and outcomes?

Partly

Is sufficient discussion included of the importance of the findings and their relevance to future understanding of disease processes, diagnosis or treatment?

Partly

Is the case presented with sufficient detail to be useful for other practitioners?

Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: General and minimally invasive surgery. Gastrointestinal and colorectal surgery.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

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