

Atypical presentation of an abdominal aortic aneurysm

M Nair, A Athow, I Kaholics

Citation

M Nair, A Athow, I Kaholics. *Atypical presentation of an abdominal aortic aneurysm*. The Internet Journal of Emergency Medicine. 2007 Volume 4 Number 2.

Abstract

Ruptured abdominal aortic aneurysm is a great masquerader that can present in a variety of clinical symptoms and signs. This is a case of ruptured abdominal aortic aneurysm that presented as a strangulated left inguinal hernia. The diagnosis of an inguinal hernia, be it complicated or uncomplicated is often simple and straight forward. Rarely this simple presentation may be the external manifestation of a distant pathology, which is in communication with the inguinal canal through its anatomic relationship. . Familiarity with the surgical emergencies that can mimic or present as simple irreducible hernia would enable a rapid diagnosis to be made with timely subsequent intervention. During exploration the presence of haematoma with in the cord warrants further laparotomy. Contrast enhanced CT scan is recommended for all dubious cases at an early stage.

INTRODUCTION

Ruptured abdominal aortic aneurysm is a great masquerader that can present in a variety of clinical symptoms and signs. This is a case of ruptured abdominal aortic aneurysm that presented as a strangulated left inguinal hernia. To the best of our knowledge there are only 15 such case reports. In all those, the patient was either anaemic, hypotensive or had intraoperative active bleeding in inguinal canal from retro peritoneum. This haemodynamically normal patient presented with acute left groin pain, irreducible left inguinal swelling and vomiting with normal hemoglobin and very high inflammatory markers.

CASE HISTORY

A 67-year-old gentleman presented to the accident and emergency department at 4am with left groin pain, vomiting, and bloatedness of 7 hours duration. He had a history of intermittent left groin pain for the past 5 weeks. He had opened the bowels the day before, which was normal. Apart from being asthmatic there was no significant past medical or surgical illness. On examination he was afebrile, alert, oriented with a normal heart rate of 96/mt and a blood pressure of 130/94. On abdominal examination there was generalised tenderness with rigidity on the left side of the abdomen with sluggish bowel sounds. A 4x4 cm non-pulsatile non reducible tender lump was palpated in left groin. No pulsatile mass was palpated in the abdomen. All peripheral pulses were felt in good volume with no brachio - femoral delay. Per rectal examination was normal.

His blood tests on admission were: hemoglobin 13.2 gm%, white cell count $21 \times 10^9/l$, amylase 52iu/l, C reactive protein 25 mg/l with normal electrolytes, renal and liver function tests. The x ray of chest, abdomen and ECG were normal. With the clinical diagnosis of a strangulated left inguinal hernia he underwent exploration of left inguinal region that showed haematoma of the spermatic cord from deep ring to root of testes with blood seemed to be seeping into the tunica albugenia. There was neither fresh bleeding nor any evidence of hernia. Post operatively (12 hours after admission) he was afebrile with a blood pressure of 124/80, heart rate of 118 and oxygen saturation of 98% on air. Six hours after surgery he was afebrile with blood pressure of 120/80, heart rate of 110 and oxygen saturation of 98% on air. Post operatively he had contrast enhanced CT scan of the abdomen which showed a leaking infrarenal abdominal aortic aneurysm

Figure 1

Figure 1



Leaking infrarenal abdominal aortic aneurysm with a diameter of 9.149 CM with blood seeping along the retroperitoneum to the left groin(arrow)

Figure 2

Figure 2



His repeat blood test showed haemoglobin of 7.6gm%, white cell count $17.5 \times 10^9/l$, and C reactive protein of 154 mg/l with normal electrolytes, renal and liver function tests. He was taken for emergency laparotomy and repair of the aneurysm. At the time of induction his blood pressure was 115/78mmhg, heart rate 110, and SPO2 98% on air. Haemodynamically, he was normal throughout the hospital admission.

DISCUSSION

Hypotension, pulsatile abdominal mass, and flank or back pain constitutes the classic triad for ruptured abdominal aortic aneurysm. However, this triad may be incomplete in

as many as 50% of patients. In the majority of cases the assessment of a correct, early diagnosis of ruptured abdominal aortic aneurysm is simple and makes a prompt surgical or endovascular operation possible. In some instances, however, rupture of aneurysms of the abdominal aorta simulates other clinical conditions. These include acute cholecystitis, acute diverticulitis of the sigmoid colon, renal colic and other gastro intestinal pathology that may delay the correct diagnosis and reduce the patient's chance of survival₁. It is worth mentioning that the scientific genius Albert Einstein died from rupture of abdominal aortic aneurysm that simulated acute cholecystitis, and in the world literature this symptomatology was subsequently described as Einstein's sign_{2, 3}. Atypical presentations of ruptured abdominal aortic aneurysm include pain radiating to the groin, upper gastrointestinal obstruction from compression of the third portion of the duodenum, gastrointestinal bleeding secondary to aortoenteric fistula usually involving the third part of the duodenum, hematuria, large bowel obstruction, priapism, lower extremity swelling related to a fistula from the aorta to IVC or renal, lumbar, or common iliac vein, acute femoral neuropathy with or without thigh ecchymosis due to femoral nerve compression as blood dissects inferiorly between the iliacus and psoas muscles and the overlying fascial pockets ,acute bilateral limb ischemia from aortic thrombosis , lower extremity ischemia , visceral thromboembolism caused by embolization of mural thrombi and high output cardiac failure. Marston catalogued the initial erroneous diagnosis in 46 of 152 retrospectively reviewed cases of ruptured abdominal aortic aneurysm as shown in Table₄.

Figure 3

Table 1

Initial Diagnosis	Misdiagnosed Cases, %	Average Delay, h
Renal colic	24	15
Diverticulitis	13	79
GI haemorrhage	13	17
Acute MI	8.7	13
Back pain	8.7	18
Motor vehicle accident	6.5	1.5
Sepsis	6.5	26
Other GI problem	6.5	4
Other/no diagnosis	13	18

Ruptured abdominal aortic aneurysm presenting as strangulated left inguinal hernia (groin swelling) due to seepage of blood through inguinal canal from retro

peritoneum is very rare. To the best of our knowledge only 15 cases have been reported in the literature^{5, 6,7,8,9}. Hypotension, anaemia and retroperitoneal blood in inguinal operative field suggest the presence of aneurysm⁷. But in our case the only finding was the presence of blood in spermatic cord. The anatomy of the retroperitoneal space and the phylogenetic development of a channel between the scrotum and the kidney are important factors in the development of this symptom complex⁸. This patient dropped his haemoglobin after initial surgery as a result of increased aneurysm leak due to loss of tamponade as a result of anaesthesia. Most abdominal aortic aneurysm rupture into the left retroperitoneum. The retroperitoneum contains the leak by means of mechanisms that cause clotting or tamponade. This rupture can also cause abdominal, back, or flank pain. This symptom is related to impingement of the hematoma on adjacent structures. Aneurysms that continue to leak or those that rupture into the peritoneal cavity can result in hemodynamic collapse and, often death. Following rupture of a abdominal aortic aneurysm bleeding occurs into the following regions: retroperitoneal - 85.3%, peritoneal - 7.1%, inferior vena cava (IVC) or iliac vein - 5.8%, enteric - 1.8%¹⁰. Rupture into the retroperitoneum typically originates from the left posterior aspect of the abdominal aortic aneurysm and intra peritoneal rupture tend to occur from the right anterior aspect¹¹.

The diagnosis of an inguinal hernia is often simple and straight forward. Rarely this simple presentation may be the external manifestation of a distant pathology, which is in communication with the inguinal canal through its anatomic relationship. Surgical emergencies that can mimic simple irreducible hernia include ruptured ectopic pregnancy, retroperitoneal haemorrhage due to any cause, femoral hernia, torsion of ovaries, and torsion of testis. The presence of haematoma with in the cord warrants further exploration. Familiarity with these would enable a rapid diagnosis to be made with timely subsequent intervention.

Surgery for ruptured abdominal aortic aneurysms continues to have an excessively high mortality rate of around 50%, where as untreated ruptured abdominal aortic aneurysm carries a mortality rate of nearly 100%. Even though some preoperative variables could be identified as predictors of mortality, an absolute mortality risk has not yet been determined and the decision to negate surgery should be individualized rather than taken on that basis only^{12, 13}. There are conflicting reports about the Glasgow Aneurysm Score and the Hardman Index in predicting the immediate outcome

after emergency open repair of ruptured abdominal aortic aneurysm^{14, 15}. Early diagnosis and treatment of symptomatic aneurysms would improve mortality figures and selective screening should be contemplated¹⁵.

CONCLUSION

Thus, the present case is another unusual presentation of ruptured abdominal aortic aneurysm and a high index of suspicion should be kept in all cases of acute abdomen with or without groin swelling. The diagnosis of an inguinal hernia, be it complicated or uncomplicated is often simple and straight forward. Rarely this simple presentation may be the external manifestation of a distant pathology, which is in communication with the inguinal canal through its anatomic relationship. The presence of haematoma with in the cord warrants further exploration. Familiarity with the surgical emergencies that can mimic or present as simple irreducible hernia would enable a rapid diagnosis to be made with timely subsequent intervention. Contrast enhanced CT scan is recommended for all dubious cases.

CORRESPONDENCE TO

Dr Manojkumar Sreedharan Nair Specialist Registrar in General Surgery North Middlesex University Hospital NHS Trust London UK N18 1SU Mob:0044 07910946629 Email: drmanojms@yahoo.co.in

References

1. Bollinger A, Ruttimann B. Aneurysms from the viewpoint of medical history : Vasa. 2002 Nov;31(4):281-6.
2. Solberg S Curriculum vitae aortae. Tidsskr Nor Laegeforen. 1998 Dec 10;118(30):4644-7.
3. Treska V. The Einstein sign. Rozhl Chir. 2003 Feb;82(2):73-4.
4. Marston WA, Ahlquist R, Johnson G Jr, Meyer AA: Misdiagnosis of ruptured abdominal aortic aneurysms. J Vasc Surg 1992 Jul; 16(1): 17-22[Medline].
5. Moissinac K, Boon Chong Se To, Liew NC, Yunus Gul Abdominal aortic aneurysm rupture masquerading as strangulated inguinal hernia, Am J Emerg Med. 2001 Nov;19(7):604-5
6. Rettedal EA, Vennesland O Ruptured abdominal aortic aneurysm. A rare form of presentation Tidsskr Nor Laegeforen. 1993 May 10;113(12):1470.
7. Louras JC, Welch JP. Masking of ruptured abdominal aortic aneurysm by incarcerated inguinal hernia. Arch Surg. 1984 Mar;119(3):331-2.
8. Khaw H, Sottiurai VS, Craighead CC, Batson RC. Ruptured abdominal aortic aneurysm presenting as symptomatic inguinal mass: report of six cases. J Vasc Surg. 1986 Oct;4(4):384-9.
9. Owen ER, Klark AE Irreducible inguinal hernia as a presentation of ruptured abdominal aortic aneurysm. J R Coll Surg Edinb. 1990 Dec;35(6):399.
10. Miani S, Mingazzini P, Piglionica R, et al: Influence of the rupture site of abdominal aortic aneurysms with regard to postoperative survival rate. J Cardiovasc Surg (Torino) 1984

Sep-Oct; 25(5): 414-9[Medline].

11. Bergan JJ, Thompson JE: The ruptured abdominal aortic aneurysm. In: Bergan JJ, Yao JT, eds. *Vascular Surgical Emergencies*. Orlando, Fla: Grune & Stratton; 1987:285-297.

12. Markovic M, Davidovic L, Maksimovic Z, Kostic D, Cinara I, Cvetkovic S, Sindjelic R, Vasic D, Lotina S. Effect of preoperative factors on survival in patients with ruptured aneurysms of the abdominal aorta *Srp Arh Celok Lek*. 2003 Nov-Dec;131(11-12):432-6.

13. Rutledge, Robert M.D., F.A.C.S. *,+; Oller, Dale W. M.D. +; Meyer, Anthony A. M.D., Ph.D. +; Johnson, George J. Jr. M.D. A Statewide, Population-Based, Time-Series

Analysis of the Outcome of Ruptured Abdominal Aortic Aneurysm. *Annals of Surgery*. 223(5):492-505, May 1996.

14. Korhonen SJ, Ylonen K, Biancari F, Heikkinen M, Salenius JP, Lepantalo M; Finnvasc Study Group. Glasgow Aneurysm Score as a predictor of immediate outcome after surgery for ruptured abdominal aortic aneurysm. *Br J Surg*. 2004 Nov;91(11):1449-52

15. Leo E, Biancari F, Nesi F, Pogany G, Bartolucci R, De Pasquale F, Rainio P, Satta J, Rabitti G, Juvonen T. Risk-scoring methods in predicting the immediate outcome after emergency open repair of ruptured abdominal aortic aneurysm. *Am J Surg*. 2006 Jul;

Author Information

Manojkumar S. Nair, MRCS MS MNAMS

North Middlesex University Hospital NHS Trust

A. Athow, FRCS

North Middlesex University Hospital NHS Trust

I. Kaholics, FRCS

North Middlesex University Hospital NHS Trust