

## Post-traumatic pseudoaneurysm of internal mammary artery: a case report.

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**SUMMARY:** Post-traumatic pseudoaneurysm of internal mammary artery: a case report.

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*Pseudoaneurysm of the internal mammary artery can be a rare complication of surgery, particularly post-sternotomy, or determined by a direct trauma, usually a stab wound.*

*This report presents a pseudoaneurysm by a stab, diagnosed by chest computed tomography scan performed for hemothorax recurrence. The patient underwent left thoracotomy in third intercostal space; mammary vessels were identified above and below the pseudoaneurysmal sac and tied. The postoperative course was uneventful.*

**RIASSUNTO:** Pseudoaneurisma post-traumatico dell'arteria mammaria interna: descrizione di un caso.

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*Lo pseudoaneurisma dell'arteria mammaria interna può costituire una rara complicanza chirurgica, in particolare dopo sternotomia, o può essere determinato da un trauma diretto, ad esempio una lesione da arma da taglio.*

*Si presenta un caso determinato da una lesione penetrante da arma da taglio diagnosticata mediante tomografia computerizzata dopo comparsa di emotorace recidivante. Il paziente è stato sottoposto a toracotomia sinistra, a livello del III spazio intercostale, che ha permesso di identificare la sacca pseudoaneurismatica e di legare i vasi mammari afferenti ed efferenti ad essa. Il decorso post-operatorio è stato regolare.*

**KEY WORDS:** Pseudoaneurysm - Internal mammary artery - Thoracic penetrating trauma.  
Pseudoaneurisma - Arteria mammaria interna - Trauma toracico penetrante.

### Introduction

We report a pseudoaneurysm of the internal mammary artery determined by thoracic penetrating trauma. The arterial lesion was not immediately recognized and diagnosis was obtained after computed tomography performed for hemothorax recurrence.

### Case report

A 26-year-old man who was recovered in Emergency Department after a stab wound, determined by a kitchen knife, in the second right intercostal space that caused a left hemothorax.

In Emergency Department he appeared eupnoic (peripheral O<sub>2</sub> saturation was 98%, arterial blood pressure was 120/80 mm Hg)

but he showed a progressive Hb reduction (11 g/dL after 12 hours). The patient was transferred to Pneumology Department and two days later chest X-ray showed hemothorax with a Hb value dropped to 9.4 g/dL. A first attempt of thoracentesis resulted unsuccessful; he underwent chest angio-computed tomography (angio-CT) that showed massive hemothorax. By thoracentesis one liter of blood was removed. Four days later chest X-ray was negative and the patient was discharged and scheduled for a control a week later.

Seven days later he complained dyspnea and fever; chest X-ray showed a recurrence of hemothorax. A new thoracentesis was performed and 1.200 cc of haematic liquid was evacuated but control X-ray showed the persistence of abundant hemothorax. The patient underwent CT that confirmed left hemothorax (Fig. 1) and showed, in second intercostal space, a pseudo-aneurysmatic sac, 2 cm in diameter, of the left internal mammary artery (Fig. 2).

The patient was transferred in our Department for surgical treatment. On admission he had Hb 9,7 and haematocrit 30.4.

A left thoracotomy was performed in third intercostal space. Tenacious adhesions were lysed, mammary vessels were identified above and below the pseudoaneurysmatic sac, and tied. The sac was opened and emptied by thrombi. The pleural cavity was irrigated and closed in the usual fashion.

Postoperative period was uneventful and the patient was discharged 3 days later. At follow-up, 6 months later, chest X-ray was

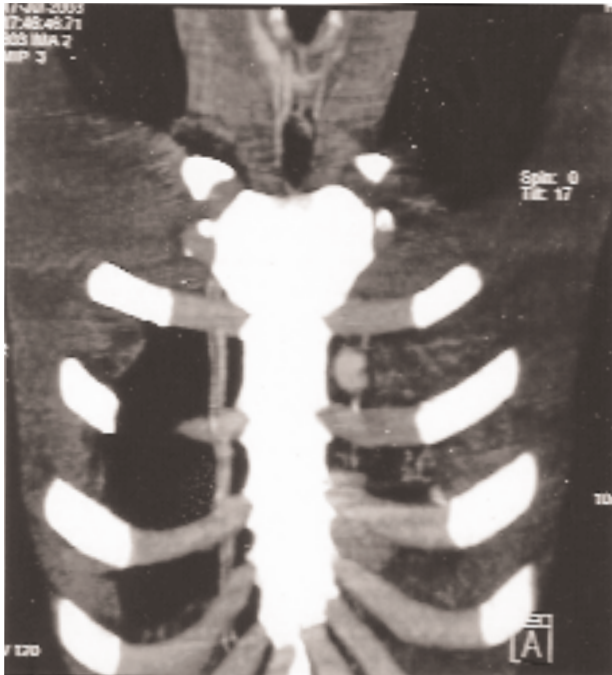


Fig. 1 - CT scan of the chest showing left hemothorax.

negative.

## Discussion

A spontaneous false aneurysm of the left internal mammary artery has been reported only once (1). The most frequent causes encountered are iatrogenic (2-9) or traumatic (10, 11).

The iatrogenic false aneurysms can be secondary to subclavian vein puncture (2) or a complication following aortic coarctation surgery (3) or sternotomy (4-9). The latter is the most frequent and two possible causes of post-sternotomy fistulas have been proposed: a) a trauma determined by sternal wire that can generate a fistulous communication between the artery and the vein with pseudoaneurysm formation; b) a direct trauma caused by retraction or electrocautery.

Regarding the traumatic causes, the most described mechanism is the stab wound (10) although blunt trauma (11) can determine an avulsion of the internal

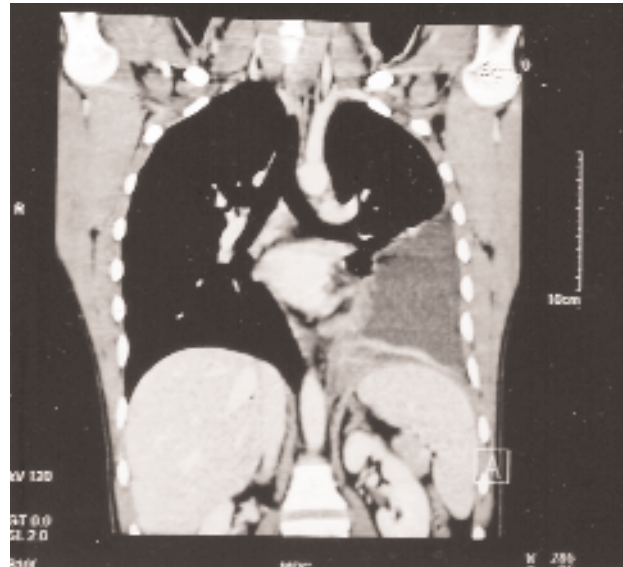


Fig. 2. CT scan of the chest showing in II left intercostal space a pseudoaneurysmatic sac, diameter 2 cm, of left mammary artery.

mammary artery from the subclavian artery.

In our case the mechanism is traumatic due to a stab wound: the blade reached the intercostal space and caused a direct lesion to the vessel walls determining a fistulous tract and a sac non completely sealed because the repeated hemothorax.

In presence of hemothorax surgical exploration should be performed immediately to avoid an ominous anemia and exsanguination. Treatment is always recommended in all cases because of the danger of increasing in size and rupture of the pseudoaneurysmatic sac.

The treatment is recommended in all cases because of the risk of increasing in size and eventually rupturing. Surgical options are pre-sternal incision, in case of post-sternotomy false aneurysm, and thoracotomy. The surgical approach we made was determined by the presence of hemothorax. Another therapeutic option is endovascular embolization with coils producing selective thrombosis of the mammary artery (9, 12-14).

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