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**Case Report / Приказ болесника**

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**Vertebral erosion due to chronic rupture of aneurismatic abdominal aorta**

Ерозије на вертебралним пршљенским телима услед хроничне руптуре  
анеуризме абдоминалне артерије

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## Vertebral erosion due to chronic rupture of aneurismatic abdominal aorta

### Ерозије на вертебралним пршљенским телима услед хроничне руптуре анеуризме абдоминалне артерије

#### SUMMARY

**Introduction** Extremely rarely, the evolution of abdominal aortic aneurysm (AAA) includes the phase when extravasations of the blood from ruptured aneurysm is contained by surrounding tissue when we refer to it as chronic (contained) rupture of the AAA.

Our aim was to call attention to this life-threatening condition, which is always challenging for diagnosis.

**Case outline** A 58-year-old man reported to the Emergency Center for significant abdominal pain. Ultrasound examination shows an infrarenal aneurysm of the abdominal aorta. A CT scan of the thorax, abdomen, and pelvis with iodine contrast in arterial phase was performed. A free gas collection is observed between the liver and the anterior abdominal wall that is traced to a ruptured inflamed diverticulum on the transversal colon. Immediately distal to the branching sites of the renal arteries, the abdominal aorta extends forward and aneurismatically expands. Posterior left, along psoas muscle was seen a rupture of the aortic wall with an organized hematoma that accompanies a muscle. Between the hematoma and the aortic aneurysm were discovered erosions of anterior and lateral part of the vertebral bodies L2 and L3. Endovascular abdominal aortic aneurysm repair (EVAR) was done to this patient and he recovered well.

**Conclusion** MDCT angiography is a reliable, non-invasive, and necessary examination for localization and evaluation of the size of the AAA form, its chronic rupture and complications as vertebral bodies erosions.

**Keywords:** abdominal aorta aneurysm; chronic rupture; vertebral body erosion

#### САЖЕТАК

**Увод** Изразито ретко, код анеуризме абдоминалне аорте (AAA) се може видети фаза када екстравазација крви из руптуриране анеуризме се задржава у околном ткиву и назива се хронична (ограничена) руптура AAA.

Наш циљ био је да се скрене пажња на ово животно угрожавајуће стање, које није увек лако открити.

**Приказ случаја** У Ургентни центар се јавио 58 година стар мушкарац због значајног бола у стомаку. Ултразвучно је верификована анеуризма инфрареналног дела абдоминалне аорте. Компјутеризована томографија са јодним контрастом је урађена. Откривена је колекција гаса између јетре и предњег трбушног зида која је праћена до руптурираног инфламираног дивертикулума трансверзалног дела колона. Непосредно испод исходишта реналних артерија се уочава анеуризматско проширење аорте које се пружа пут унапред. Позади лево, дуж *m. iliopsoasa*, уочена је руптура зида аорте са организованим хематомом који се пружа унутар мишића. Између хематома и анеуризматског проширења се виде ерозије предњег и спољашњег дела L2 и L3 пршљенских тела. Урађена је ендоваскуларна репарација анеуризме абдоминалне аорте и пацијент се добро опоравио.

**Закључак** Компјутеризована томографија аортографија, иначе неинвазивна метода, показала се као поуздана и неопходна у случају откривања хроничне руптуре анеуризме абдоминалне аорте са компликацијом у виду ерозија кичмених пршљенова.

**Кључне речи:** анеуризма абдоминалне аорте, хронична руптуре, ерозије пршљенских тела

## INTRODUCTION

Abdominal aortic aneurysm (AAA) is a dilatation of its wall up to a diameter greater than 30 mm. AAA rupture is a significant cause of death for people over 55 years of age [1]. In cases where after a rupture and under certain circumstances, hematoma formation occurs with localized and partly organized bleeding a chronic AAA rupture is created which occurs in only 4% of all AAA cases [2]. One of the few complications can be the usurpation of vertebral bodies as a result of long-term compression on them [3].

## CASE REPORT

A 58-year-old man reported to the Emergency Center for significant abdominal pain. There wasn't any history of diabetes, hypertension and chronic lung disease. He has been smoking and had myocardial infarction 15 years ago and had duodenal ulcer surgery 10 years ago. Physical examination revealed that patient is sub-febrile and normotensive, and palpatory examination of abdomen revealed pulsations in supra and umbilical region. Laboratory findings were within normal limits. Ultrasound examination shows an infrarenal aneurysm of the abdominal aorta. In the native abdominal image in the supine position, we notice a smaller free gas collection – pneumoperitoneum. A CT scan of the thorax, abdomen, and pelvis with iodine contrast in arterial phase was performed. We found right pleural effusion diameter of 25mm, with no active pathological changes in the lungs. Nonsignificant finding in the mediastinum. A free gas collection is observed between the liver and the anterior abdominal wall that is traced to a ruptured inflamed diverticulum on the transversal colon. Perihepatic and perisplenic free fluid and signs of mesenteritis were found. A ventral hernia of the anterior abdominal wall with bowel and adipose tissue within the hernia sac is noted. Immediately distal to the branching sites of the renal arteries, the abdominal aorta extends forward and aneurismatically expands the largest diameter of about 15 cm, calcified wall with a marginal thrombus mass of about 16 cm in length (Figure 1.). Posterior left, along psoas muscle was seen a rupture of the aortic wall with an organized hematoma that accompanies a muscle about 12 cm in length. Between the hematoma and the aortic aneurysm were discovered erosions of anterior and lateral part of the vertebral bodies L2 and L3 (Figure 2.). Right common iliac artery was aneurismatically dilated up to 35mm in diameter, while the left one was of a normal lumen width, and both calcified walls.

Endovascular abdominal aortic aneurysm repair (EVAR) was done to this patient and he recovered well.

Before the EVAR procedure, a ruptured diverticulum was needed to be resolved. After drainage of the peritoneum, surgeons did colonic resection with primary anastomosis without colostomy placement. For the next 10 days, the patient was on antibiotic therapy. Postprocedural complications did not occur.

## DISCUSSION

Chronic AAA rupture is a rare complication that occurs in 4–7% of cases [2, 4]. On CT examination, it appears as a sign of a “wrapped” aorta. It is represented as the discontinuity of the calcified aortic wall, a clearly limited mass of soft tissue density vaguely restricted from other adjacent structures (spine, psoas muscle) [5, 6]. There are no signs of contrast extravasation within the mass described, which clearly differentiates it from true AAA rupture [7, 8, 9]. Diagnosis of chronic AAA rupture is very important and unnecessary due to erosion of vertebral bodies and to find out the causes of them. The complications of vertebral bodies’ erosions could be paraplegia, inflammation as well as death [10, 11].

Destructions of vertebral bodies occur as a complication in only 7% of AAA cases [3]. The cause of erosion of vertebral bodies can be a wide range of diseases of different etiology: metastases, vertebral tumors, vertebral fractures, osteoporosis, and spondylitis [12, 13, 14]. They can occur separately from AAA in inflammatory diseases such as Behcet's disease and syphilis. Compressive usages can occur in retroperitoneal tumors and retroperitoneal abscesses, and this is where CT diagnosis is crucial in differentiating from the compressive effect of chronic AAA rupture [6].

In the case of our patient, we notice the sign of a “wrapped” aorta as the discontinuity of the calcified wall, then the mass of soft tissue density (formed by the old hematoma) extending from the AAA, vaguely delimited by the left psoas muscle and in contact with the spinal column and usurpations of the L2 and L3 vertebrae. We made the consultation with orthopedics and decided not to do anything with vertebral bodies and to let them repair spontaneously. Endovascular abdominal aortic aneurysm repair (EVAR) was done to our patients as the best way for repairing aneurismatic dilatation of aorta as a golden standard [14, 15, 16]. The patient recovered well. Ten days after the procedure he was released from the hospital, and has been controlled regularly without any complications.

Based on literature and as presented in our case we can conclude that MDCT angiography is a reliable non-invasive and necessary examination for localization and evaluation of the size of the AAA form, as well as for differential diagnosis of its complications.

**Conflicts of interest:** All authors have declared that no financial support was received from any organization for the submitted work, as well as that there are no other relationships or activities that could appear to have influenced the submitted work. All authors declared that all figures of our manuscript are original. The study fulfills the ethical guidelines of the most recent declaration of Helsinki (Edinburgh, 2000) and has received approval from the local ethical committee.

**Informed consent statement:** Consent was obtained from the patient for publication of this report and any accompanying images.

Paper accepted

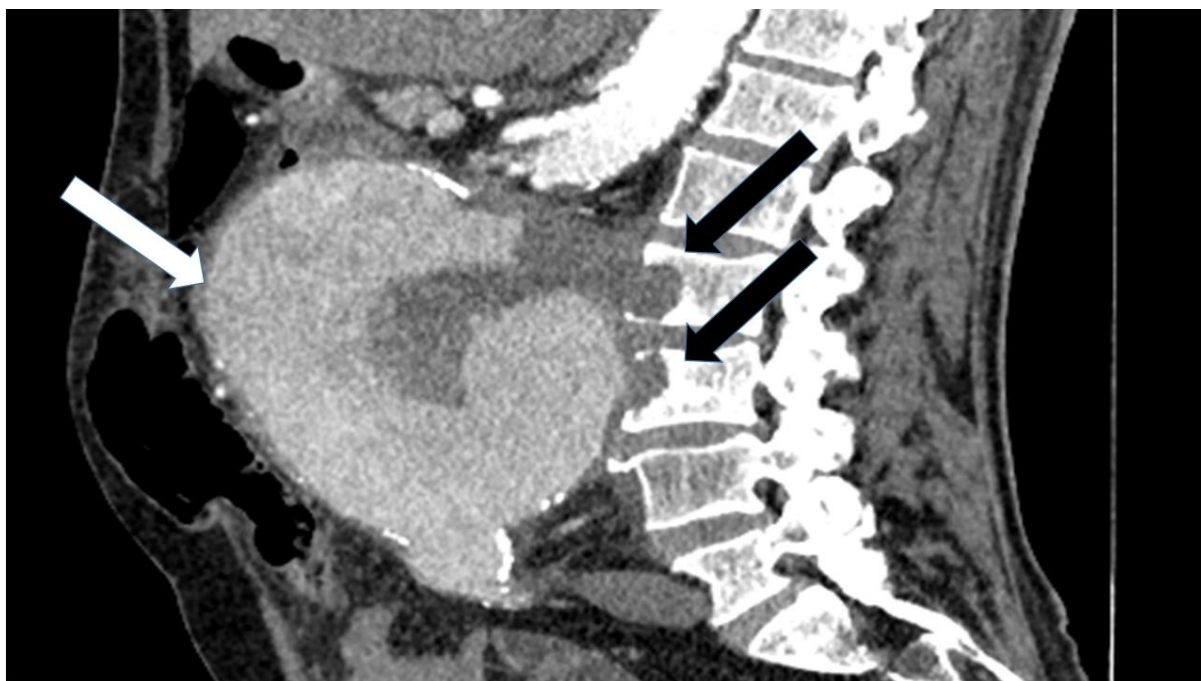
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**Figure 1.** Computed tomography aortography showing abdominal aorta extending forward and aneurismatically expanding with calcified wall and a marginal thrombus mass (white arrow).



**Figure 2.** Sagittal computed tomography reconstruction showing the aortic aneurysm (white arrow) and discovered erosions of anterior and lateral part of the vertebral bodies L2 and L3 (black arrows)