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Visual Case Discussion

Stanford Type A aortic dissection with Pulmonary Artery Hematoma

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A 58 year old man with history of non-compliant hypertension arrived by emergency medical services for chest pain. The chest pain was sudden, severe, sternal, radiated towards his epigastrium, and not relieved with nitro, morphine, or aspirin given in the field. He had associated diaphoresis and nausea. Blood pressure upon arrival was 154/82 and his other vitals were within normal limits. Given that he was still in 10/10 pain, severely diaphoretic, and his presentation he was quickly taken for a CTA of the chest/abdomen/pelvis.

His CTA showed a Stanford Type A dissection from the aortic root extending through the entire thoracic aorta, abdominal aorta, and all the way to the left external iliac artery, Figs. 1 and 2. There was extension of the dissection to the right brachiocephalic artery, Fig. 1A. With the pulmonary artery there appeared to be a suspicion for a dissection at the main, right main, left main, and proximal segmental branches, Figs. 1 and 2. His case was immediately discussed with the nearest tertiary hospital with a cardiothoracic capabilities who accepted transfer.

During treatment at the tertiary facility they found a large number of clots at the adventia of the main pulmonary artery, pulmonary trunk, and external segments at the both and right. What we initially thought was a pulmonary artery dissection turned out to be a pulmonary artery hematoma. A pulmonary artery hematoma after an aortic dissection is a rare event.[1,2] The ascending aortic and pulmonary artery share a common adventia at the roots of these vessels. When the ascending aortic root dissects blood enters the adventia and can extend towards the pulmonary artery given enough pressure.[1]

Questions

1 What part of the aorta is closely connected to the pulmonary artery from a shared adventia?.
  a Aortic Root
  b Abdominal Aorta
  c Descending Aorta
  d Ascending Aorta***
2 What is the management for a Stanford Type A aortic dissection?.
  a Medical Management
  b Surgical Management***

Answers

1 The root of the ascending aorta shares an adventia with the pulmonary artery. When there is a dissection of the ascending aorta blood can accumulate and place pressure at the pulmonary artery causing a hematoma of the pulmonary artery. Sueyoshi, Eijun & Matsuoka, Yohjiro & Sakamoto, Ichiro & Uetani, Masataka. (2009). CT and clinical features of hemorrhage extending along the pulmonary artery due to ruptured aortic dissection. European radiology. 19. 1166-74. 10.1007/s00330-008-1272-7.
2 Stanford type A aortic dissections require surgical management

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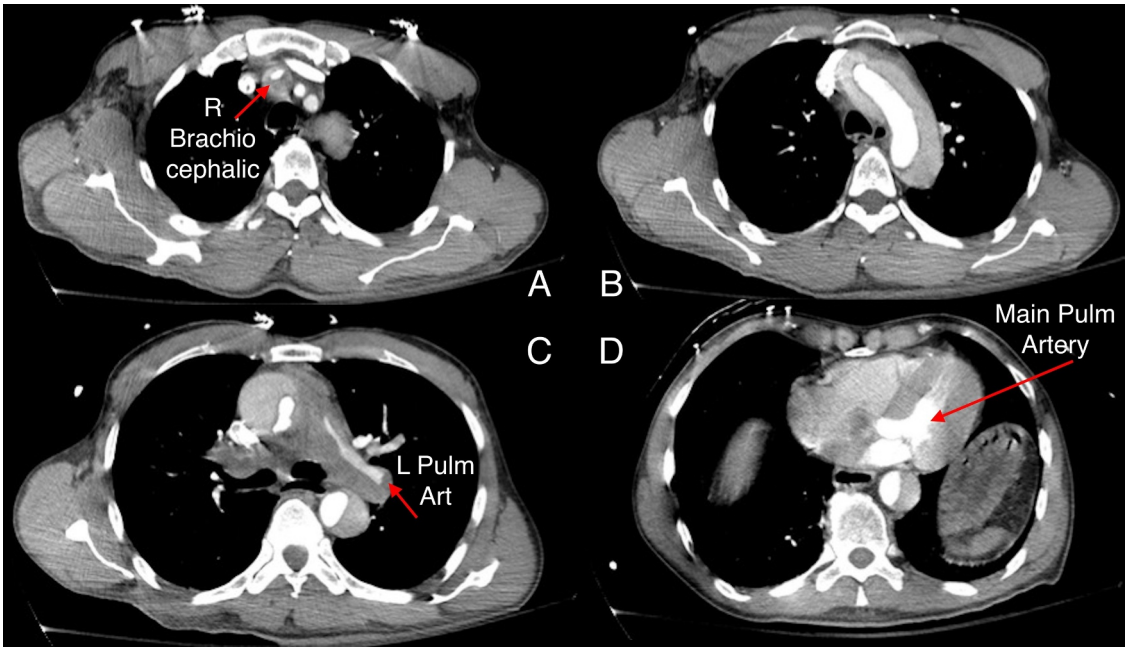

Fig. 1. A; Aortic dissection at the right brachiocephalic artery, B; Aortic dissection at the aortic root, C; Aortic dissection seen at the ascending and descending aorta along with a hematoma of the left pulmonary artery proximal segmental branch, D; Hematoma of the main pulmonary artery, right main branch, and left main branch.

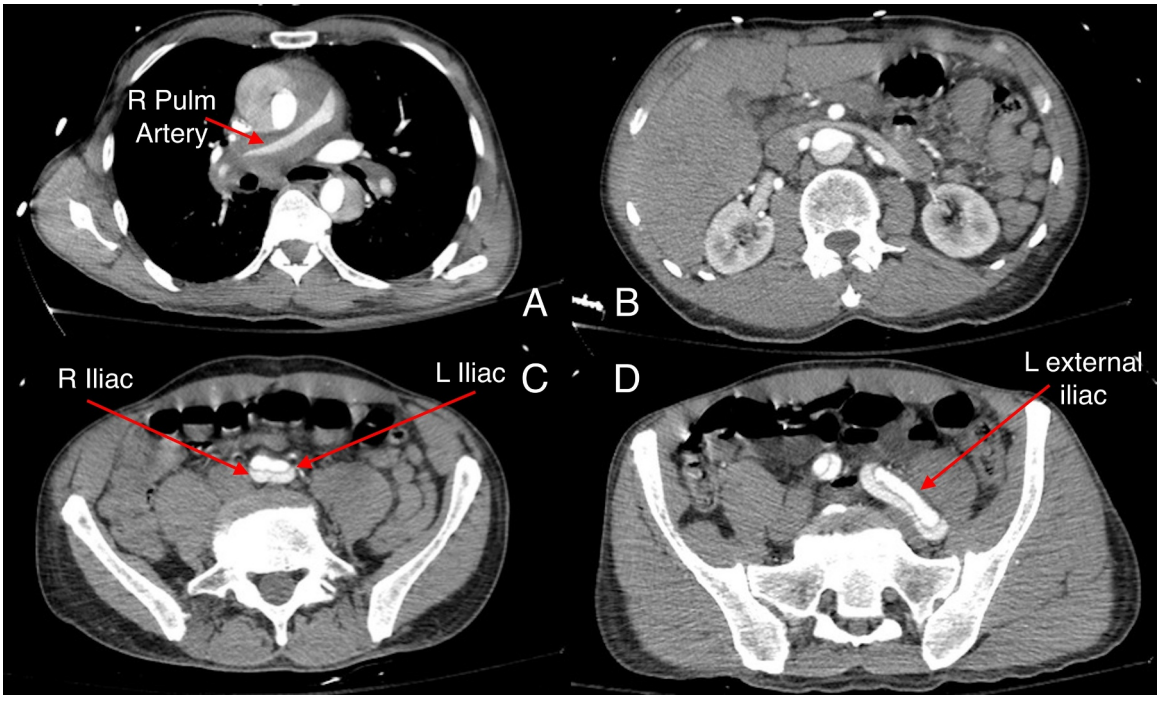

Fig. 2. A; Hematoma of the right pulmonary artery at the proximal segmental branch, B; extension of the aortic dissection to the abdominal aorta at the level of the superior mesenteric artery, C; extension of the aortic dissection to the abdominal aorta at the right and left iliac arteries, D; xtension of the aortic dissection to the abdominal aorta at the left external iliac artery.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.visj.2019.100680.

References

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