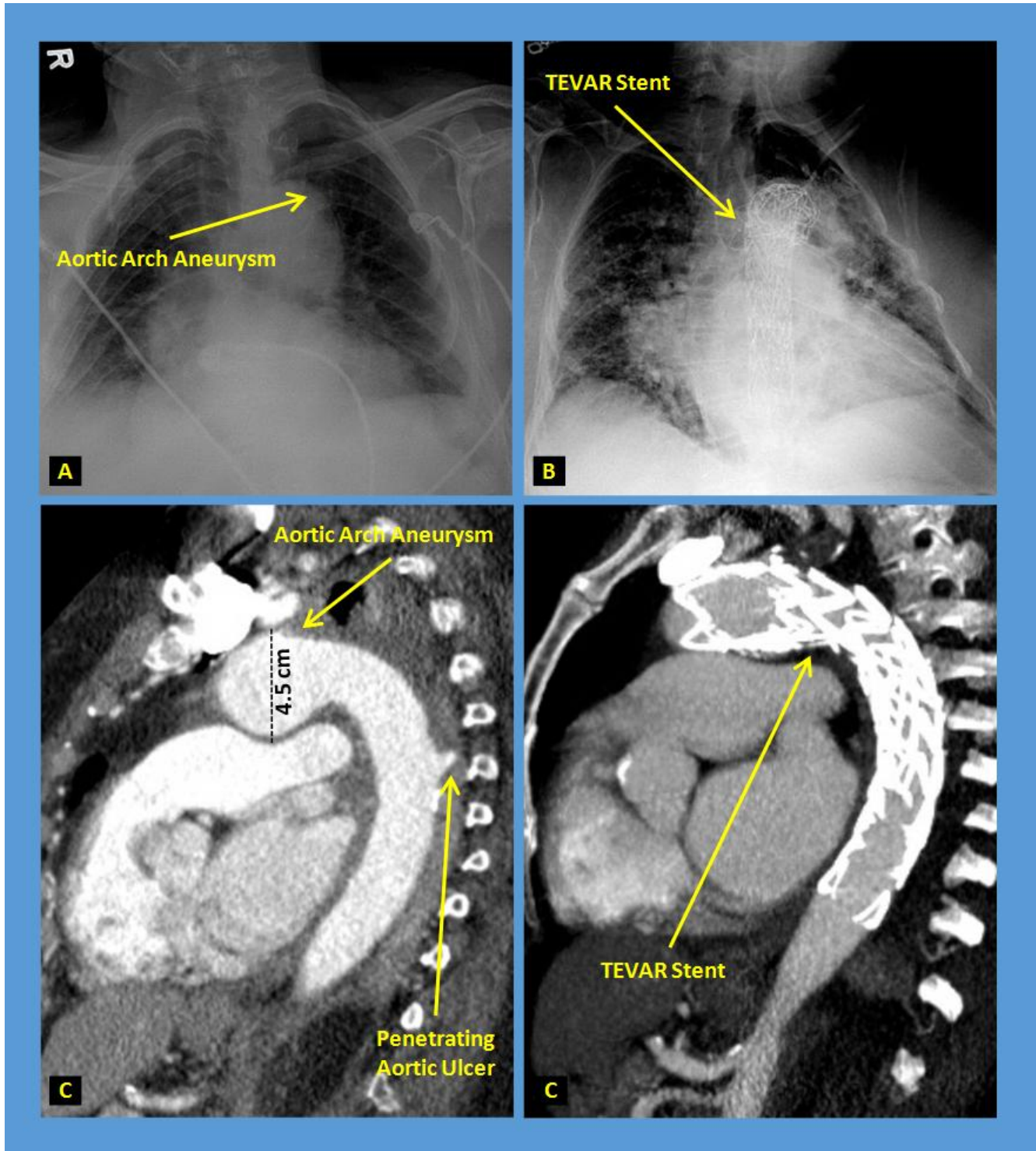


Thoracic Aortic Repair..TEVAR or TOVAR, That Is The Question!

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Description

The figure above shows chest X ray (A & B) and computed tomography (CT) images (C & D) of the chest before (A & C) and after (B & D) thoracic endovascular aortic repair (TEVAR) with a stent graft for aortic arch aneurysm and penetrating ulcer of the descending thoracic aorta.

Discussion

Thoracic aortic aneurysm (TAA) is an abnormal dilatation of any of the three segments of the thoracic aorta; ascending, arch or descending thoracic aorta. When the aorta is abnormally enlarged, it can lead to fatal rupture if not immediately diagnosed and treated. With an incidence of roughly 10 cases per 100,000, TAAs are more prevalent in men, but have worse prognosis in women [1].

There are many risk factors for TAA, including poorly controlled hypertension, stimulant use (e.g. cocaine), genetic syndromes (Marfan syndrome, Turner syndrome, Loeys-Dietz syndrome), inflammatory vasculitides (Behcet syndrome, Takayasu arteritis) and chronic corticosteroid use [1].

Aneurysm size predicts growth rate and the risk of rupture. Overall, the survival of patients with an aneurysm > 5 cm in diameter is poorer than in patients with aneurysms of smaller diameter. The cut point for intervention on TAAs is a diameter of 5.5 cm, due to the significant risk of rupture when the diameter is larger, or when the rate of growth of the aneurysm equals to or exceeds 0.5 cm per year. Intervention can be accomplished by Thoracic Open Vascular Aortic Repair (TOVAR) versus Thoracic EndoVascular Aortic Repair (TEVAR); either of which is often decided based on the patient's overall surgical risk [2].

Historically, repair of TAA syndromes involved the use of open surgery (TOVAR). However, long term outcomes such as increased risk of peri-operative mortality, expense and prolonged hospital course ushered the need for more conservative approaches. Parodi et al. in 1991 pioneered the concept of TEVAR testing on animals, and with improved outcomes, they

were able to acquire FDA approval for TEVAR as the standard of care for many thoracic aortic syndromes traditionally treated by open surgical repair [3, 4].

Recent studies challenged the superiority of outcomes using TEVAR. Although TEVAR resulted in less peri-operative mortality, one study reported that Medicare patients who underwent TEVAR had lower survival long-term (likely a reflection of their higher risk) compared with patients who were selected for open surgical repair [5]. Nevertheless, TEVAR remains an attractive less invasive option for many aortic syndromes. Although it was initially used to treat aortic aneurysms, TEVAR indications currently include treating type B aortic dissections (with malperfusion or rupture), acute aortic transections due to trauma, and penetrating aortic ulcers, as demonstrated in the figure above [6].

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