

# Egg Shell Sign: Rare Finding in Acute Aortic Dissection

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A 77 year-old woman presented with a one day history of central chest pressure that radiated to the neck and right upper extremity. She had a history of hypertension and chronic obstruction pulmonary disease. Her blood pressure was 86/47 with a heart rate of 87 beats per minute. A grade 2/6 systolic ejection murmur was auscultated over the left sternal border. An electrocardiogram showed ST elevation in lead III with ST depression I, AVL, V4-V6 and a chest radiograph was obtained which showed an “egg shell sign” as compared to previous radiograph (Figures 1 and 2). The patient was diagnosed with a type A aortic dissection and taken to the operating room for emergent repair but died during the procedure.

## DISCUSSION

Aortic dissection was first described more than 200 years ago by Morgagni and since then has become the most common aortic emergency requiring surgical intervention.<sup>1,2</sup> Aortic dissections are currently classified by their location with the Stanford Type A dissection involving the ascending aorta, and the Type B dissection occurring distal to the left subclavian artery.<sup>2</sup>



Figure 1. Previous radiograph with no acute disease process.

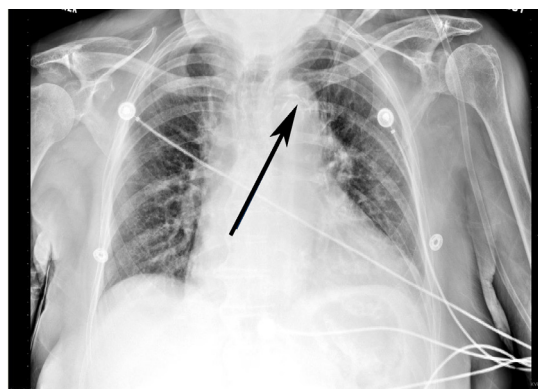


Figure 2. Egg shell sign (arrow), defined as a distance greater than 6mm from the aortic calcification to the lateral soft tissue margin of the aorta, with a widened mediastinum indicating aortic dissection.

A meta-analysis showed that acute onset of pain had a sensitivity of 84% and that severe pain had a sensitivity of 90% for aortic dissection.<sup>3</sup> A new diastolic murmur does little to change the pretest probability but pulse deficits or a blood pressure differential has a high pre-test probability of aortic dissection.<sup>3</sup> Chest radiography is abnormal in 90% of patients with an acute aortic dissection.<sup>3</sup> In Figure 2, the patient had both a widened mediastinum and an “egg shell” sign indicative of an aortic dissection. The “egg shell” sign is reported in only 14% of patients with aortic dissection and is described as displacement of the soft tissue greater than 6mm from an aortic calcification.<sup>2,4</sup>

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