



The “tangential calcium” sign

Janardhana Ponnatapura¹ · Raymond B. Dyer¹

Published online: 24 April 2019

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Imaging signs of instability and impending rupture of an abdominal aortic aneurysm (AAA) should be promptly recognized and reported, as early diagnosis of aneurysm leak or rupture is crucial to patient survival. Rupture of an AAA carries a very high mortality rate (nearly 100% if treatment is delayed) with an estimated 15,000 to 30,000 yearly deaths in the USA [1].

Several imaging signs have been described heralding aneurysm instability, including the hyperattenuating crescent sign, draped aorta sign, focal calcium discontinuity sign and

thrombus fissuration [2, 3]. The “tangential calcium sign”, defined as calcified atherosclerotic plaque that is divergent from the anticipated arc of the aorta adjacent to an area of focal calcium discontinuity, is another important sign of an unstable aneurysm (Fig. 1a, b, c) [4]. The radiologist should be familiar with the spectrum of clinical presentations and imaging signs for AAA and its complications, to provide for rapid diagnosis and prompt initiation of potentially life-saving intervention.

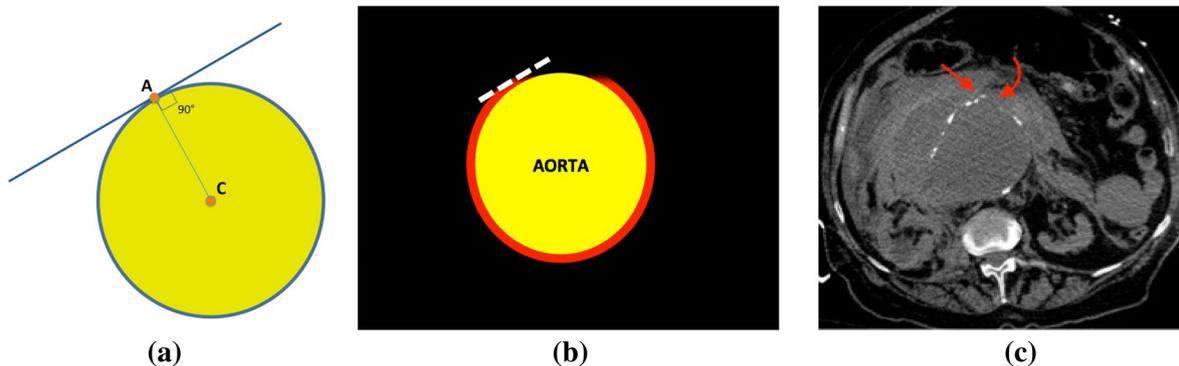


Fig. 1 **a** The blue line in the figure is called the “tangent to the circle c”. A tangent is defined as a straight line that touches a curve or curved surface at a single point (Source: <https://www.mathopenref.com/tangent.html>). **b** A graphic depiction of the “tangential calcium” sign. Red color represents the circumferential wall of the aorta with focal discontinuity at 12 o’ clock position. Dashed white line represents the linear calcification that does not conform to the antici-

pated aortic arch demonstrating the “tangential calcium” sign. **c** Axial unenhanced CT in a patient presenting with abdominal pain, and findings of ruptured AAA, with focal discontinuity of the intimal calcification in the wall of the aneurysm (curved red arrow) and adjacent linear calcification that does not conform to the anticipated aortic arc, the “tangential calcium” sign (straight red arrow). There is also high attenuation stranding anterior to the aorta, consistent with rupture

✉ Janardhana Ponnatapura
ponnatapura@gmail.com

¹ Department of Radiology, Wake Forest Baptist Medical Center, Wake Forest University School of Medicine, Medical Center Blvd., Winston-Salem, NC 27157, USA

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Research involving human and animal rights This article does not contain any studies with human participants or animals performed by any of the authors.

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