

VASCULAR IMAGE

Carotid Artery Donut Sign

Polyzois Tsantrizos, MD, MSc¹, Spyros Papadoulas, MD, PhD¹, Konstantinos Nikolakopoulos MD, MSc, PhD¹, Peter Zampakis, MD, PhD², Stavros K Kakkos, MD, PhD, MSc, PhD, DIC, RVT³

¹Vascular Surgery Department, Patras University Hospital, Patras-Greece

²Associate Professor, Department of Radiology, Patras University Hospital, Patras, Greece

³Associate Professor & Chairman, Vascular Surgery Department, Patras University Hospital, Patras, Greece

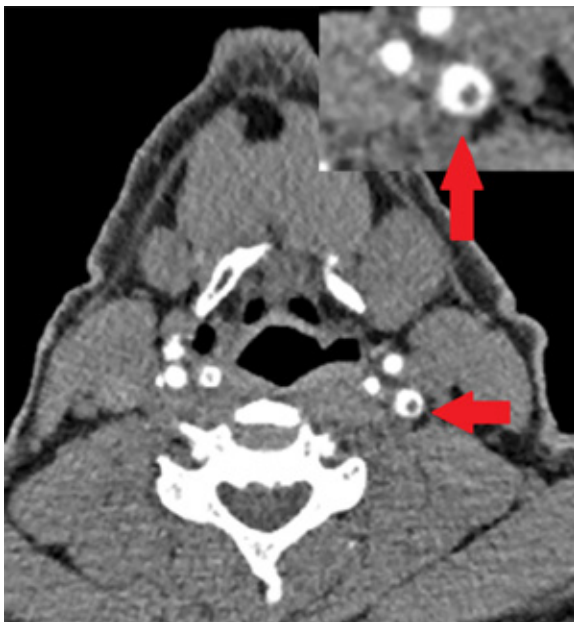


Figure 1.

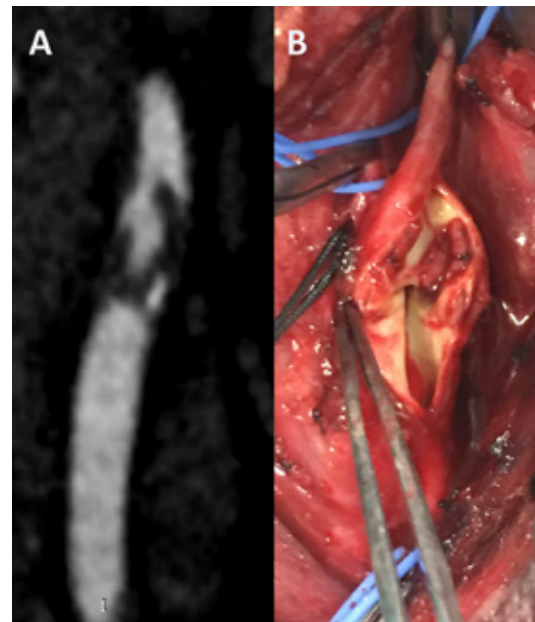


Figure 2.

A 58-year-old right-handed male, heavy smoker with a past medical history of hypertension, diabetes mellitus and dyslipidemia, was admitted to the Neurology Department with three transient ischemic attacks manifested as right arm hemiparesis and motor aphasia. These episodes were brief in duration and occurred within a period of a few hours. Duplex ultrasound revealed an atherosclerotic plaque with an overlying thrombus producing a 70% stenosis of the left internal carotid artery. Magnetic resonance scanning of the brain demonstrated recent infarcts scattered throughout the left hemisphere. Computed tomography angiography showed a 80% stenosis with free floating thrombus: in axial images thrombus pro-

duced a specific finding, previously reported as 'donut sign',¹ being a result of the central filling defect surrounded by normal lumen opacification (Fig. 1, arrow), see also Fig. 2, panel A. Confirmed on urgent surgery (Fig. 2, panel B), a typical carotid thrombendarterectomy was performed with primary repair of the arteriotomy site. Postoperative course was uneventful, and patient was discharged on the second postoperative day. Treatment alternatives include medical treatment with anticoagulation, urgent carotid endarterectomy, and medical management with deferred surgery if the tail of the thrombus extends considerably high in the internal carotid artery beyond the reach of surgery.²

Author for correspondence:

Polyzois Tsantrizos, MD, MSc

Vascular Surgery Department, Patras University Hospital, Patras-Greece

E-mail: polyzois.tsantrizos@hotmail.com

ISSN 1106-7237/ 2019 Hellenic Society of Vascular and Endovascular Surgery Published by Rotonda Publications All rights reserved. <https://www.heljves.com>

REFERENCES

- 1 Menon BK, Singh J, Al-Khataami A, Demchuk AM, Goyal M. Calgary CTA Study Group. The donut sign on CT angiography: an indicator of reversible intraluminal carotid thrombus? *Neuroradiology* 2010 Nov; 52(11): 1055-6.
- 2 Fridman S, Lownie SP, Mandzia J. Diagnosis and management of carotid free-floating thrombus: A systematic literature review. *Int J Stroke* 2019 Apr;14(3): 247-256.