A 61-year-old lady presented with recurrent right middle cerebral artery (MCA) territory stroke. She had a previous stroke 3 years earlier which was investigated with transthoracic echocardiography, Holter monitor, and carotid Doppler, but no thrombo-embolic source was identified. She has been on Asasantin for secondary stroke prevention since then. She also had a history of hypertension secondary to coarctation of the descending thoracic aorta which was successfully treated with endoluminal stenting when she was 59 years old.

During this presentation, brain magnetic resonance imaging scan confirmed acute right MCA territory cerebral infarction. Carotid Doppler, transthoracic echocardiography, and Holter monitoring were repeated without showing a thrombo-embolic source.

She was then referred for a transoesophageal echocardiogram (TOE) which showed a large left atrial septal pouch with heavy spontaneous echo contrast and possibly a small thrombus (Panel A); the pouch measured 12 × 17 mm and was communicating with the left atrial cavity (Panel B). No inter-atrial communication was detected by agitated saline injection and stagnant flow in the pouch was demonstrated by colour Doppler (Panel C).

The patient was treated with warfarin, had good neurological recovery with no recurrent events 6 months after the second stroke. Left atrial septal pouch has recently been described as a new anatomical entity with possible link to embolic stroke. It forms due to incomplete fusion between the septum primum and septum secundum along the zone of overlap and it communicates with either the right or left atrium.

Our case confirms the predisposition for embolic stroke in patients with the left atrial septal pouch and emphasizes the importance of TOE for assessing stroke patients for a possible thrombo-embolic source.

Panels A–C. (A) Transoesophageal echocardiogram revealing left atrial septal pouch with heavy spontaneous echo contrast, LA left atrium, RA right atrium, RV right ventricle, LASP left atrial septal pouch, SP septum primum, SS septum secundum. (B) The pouch measuring 17 × 12 mm and communicating with the left atrium. (C) Colour doppler image revealing stagnant flow in the pouch and communication with the left atrium.

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