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IATROGENIC FISTULA AFTER LUMBAR DISC SURGERY

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Key-word: Arteriovenous malformations

Background: A 54-year-old patient presented with dyspnea, palpitation, a swollen, dysfunctional edematous left leg and discomfort. Medical history revealed chronic, a-specific leftsided thoracic pain, corticosteroid use because of Morbus Sjogren and a recent surgical lumbar hernia repair. Retrospectively, follow-up conventional imaging showed a progressive right-sided cardiac enlargement, left pleural effusion and a prominent superior mediastinum.

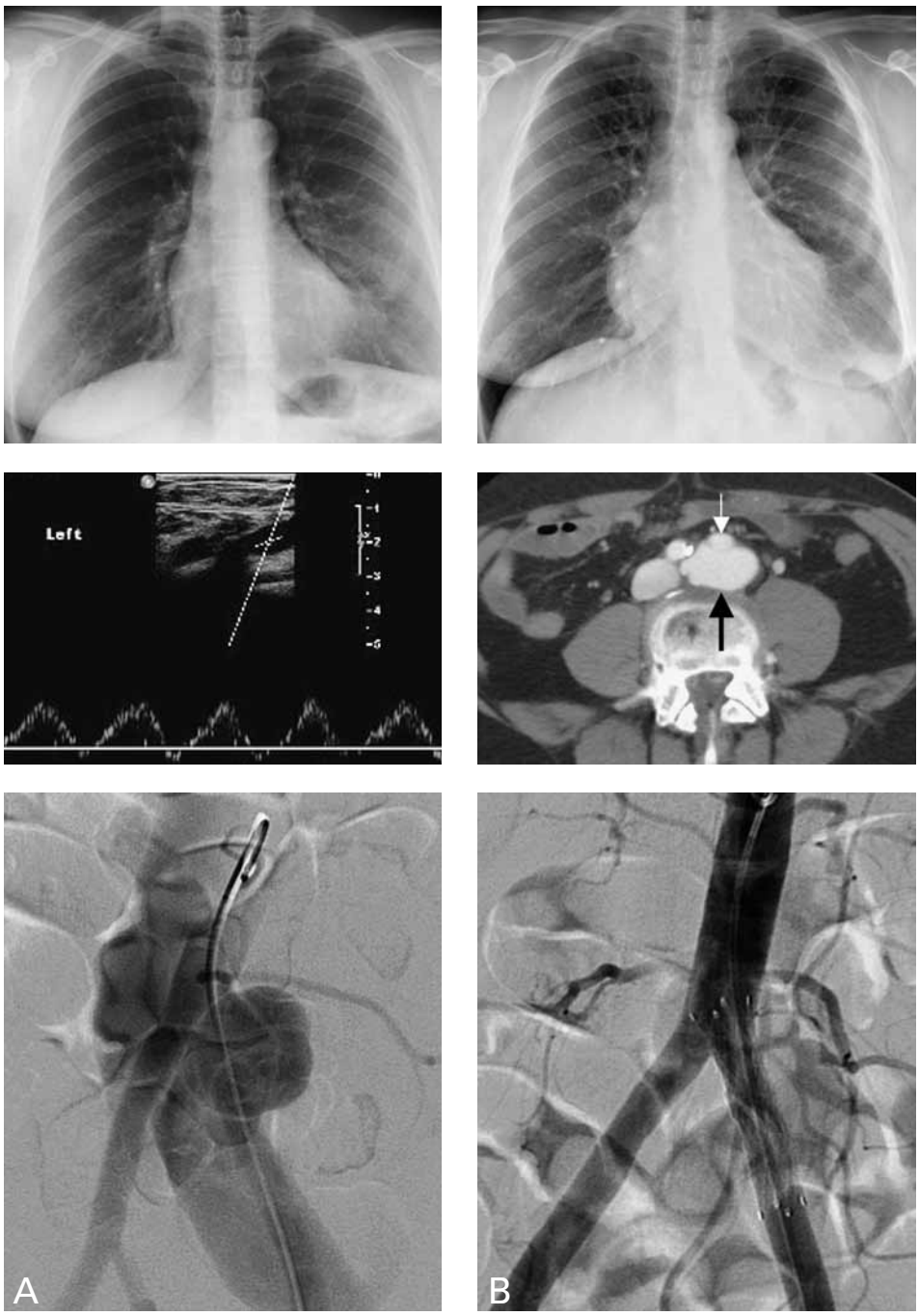

Fig.	1	2
	3	4
	5A	5B

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Work-up

Conventional radiograph of the thorax (PA view) (Fig. 1) and conventional radiograph of the thorax (PA view) (Fig. 2), eighteen months later show left-sided pleural effusion, right-sided cardiac enlargement and a more prominent aspect of the superior mediastinum on the most recent radiograph (Fig. 2).

On Doppler ultrasonography of the left iliac vein (Fig. 3) a pulsating signal in the left common iliac vein is seen.

Contrast-enhanced CT scan, at the level just below the bifurcation of the abdominal aorta (Fig. 4) demonstrates simultaneous contrast enhancement of the iliac arteries and veins. Aneurysmatic dilatation of the left common iliac vein (thick black arrow), with close contact to the left common iliac artery (thin white arrow).

Angiography of the aorta (Fig. 5) (A: fluoroscopic images at the aortic bifurcation) shows simultaneous contrast enhancement of the abdominal aorta and the inferior vena cava, with dilated inferior cava vein and left iliac vein. Control angiography following placement of a covered stent proximal in the left common iliac artery (B) shows excellent arterial flow to the left leg. No enhancement of the iliac vein is visible.

Radiological diagnosis

The right-sided cardiac enlargement, the pulsating venous signal in the left iliac vein on Doppler ultrasound and simultaneous venous and arterial enhancement on contrast-enhanced CT scan all point to the diagnosis of *arteriovenous fistula*.

In this case an iatrogenic fistula after lumbar disc surgery which was treated successfully by placement of a 10 mm covered stent in the left common iliac artery.

Discussion

Arteriovenous fistulas are abnormal connections between the arterial and venous system that bypass the normal anatomic capillary beds. They may be congenital like in patent ductus arteriosus, but most of them are acquired due to trauma, atherosclerosis, infection, malignancy or by iatrogenic causes such as complicated cardiac catheterisation, laparoscopic cholecystectomy or, less often, lumbar disc surgery.

They are commonly found in the extremities but can affect any organ in the body.

Symptoms and complications depend on location and size. Where small fistulas are asymptomatic most of the time, larger fistulas can become clinically significant because of elevated central venous pressure.

The clinical implications include lower extremity edema, deep venous thrombosis, varicose veins, and nerve compression. Arterial hypotension distally of the fistula can cause development of or worsening of intermittent claudication, and rest pain secondary to distal ischemia. The most significant side-effect is the development of congestive heart failure due to increased cardiac output, as was the case in the presented case.

In evaluating patients with a suspected arteriovenous fistula of the proximal extremities Doppler ultrasonography or CT arteriography can be performed.

Besides closure of the arteriovenous fistula by surgical repair, endovascular treatment with stent-grafts is a low-risk procedure, which is less invasive compared to surgery.

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