Diagnosis and Followup of Takayasu's Arteritis by Scintigraphy with Radiolabelled Interleukin 2

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In July 1993 a 17-year-old woman was diagnosed with Takayasu's arteritis (type I) in the acute stage[1,2]. She had a weak left radial pulse: arterial pressure was 130/70 mm Hg in the right and 100/65 mm Hg in the left arm. Blood tests were in agreement with the diagnosis. The ultrasonographic study and aortography showed a diffuse and circumferential thickening of the intima–media complex resulting in 80% stenosis in the left subclavia distally to the origin of the left vertebral artery (Figure 1A). Therapy with prednisone and acetylsalicylic acid was initiated. She rapidly became free of symptoms and the laboratory tests improved substantially.

In February 1994, she complained of recurrent pain, paresthesias of the left arm, and dizziness on neck movement. New aortography showed a stenosis of the proximal left subclavia to the origin of the left vertebral artery. Therefore, a new imaging modality was applied to evaluate the activity and extent of the inflammatory process[3]: scintigraphy with radiolabelled interleukin 2 (^{99m}Tc-IL-2). This revealed an abnormal uptake in the area of the left subclavia and at the origin of the left common carotid artery (Figure 2A) indicating the presence of an active process of lymphocytic infiltration in the arterial wall; methotrexate was added to therapy.

In June 1994, all laboratory tests being normal, a percutaneous transluminal angioplasty was successfully performed (Figure 1B). In June 1998, the therapy was discontinued.

From 1994 to the present, the patient has been in good health. Ultrasound, aortography, and angio-nuclear magnetic resonance (NMR) showed a normal arterial lumen and blood flow. New ^{99m}Tc-IL-2 scintigraphy in 1997 (Figure 2B) and in 2000 (Figure 2C) showed no sign of chronic inflammation.

We conclude that ^{99m}Tc-IL-2 scintigraphy is a useful procedure to diagnose and follow the extent and activity of chronic inflammatory diseases such as Takayasu's arteritis[4,5] in which laboratory tests, ultrasound, and angio-TC and NMR are nonspecific for assessment of inflammatory activity.

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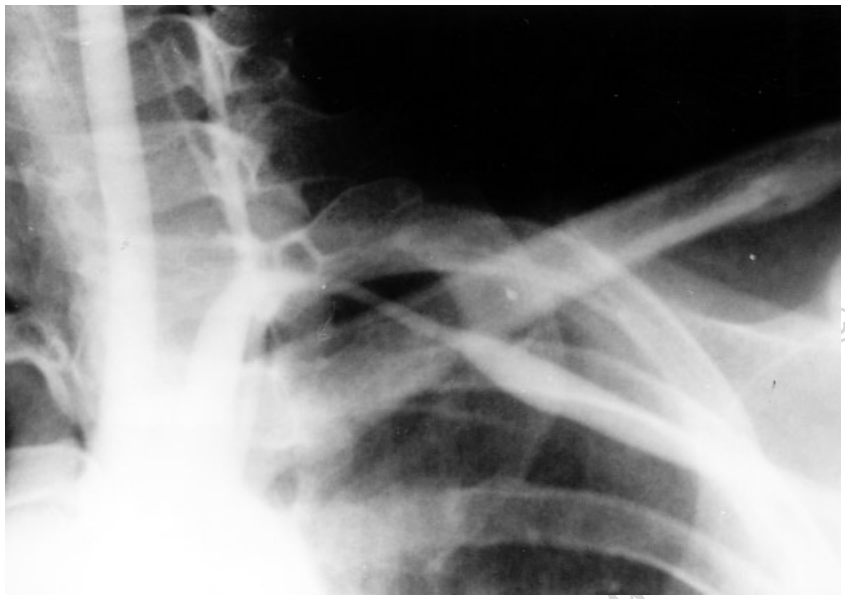
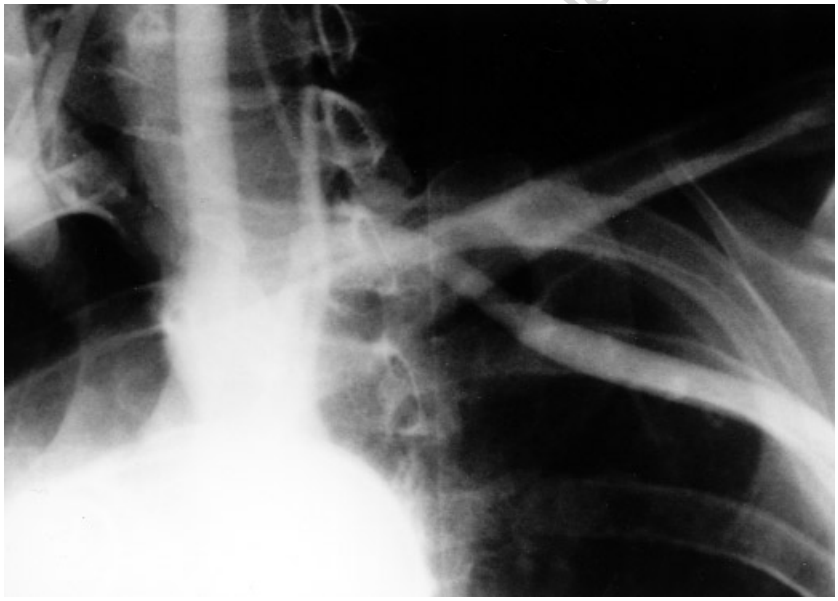


A



B

Figure 1. Aortography performed in 1993, before beginning of therapy (A), and in June 1994 (B) after percutaneous transluminal angioplasty of the stenotic lesion of the left subclavia.

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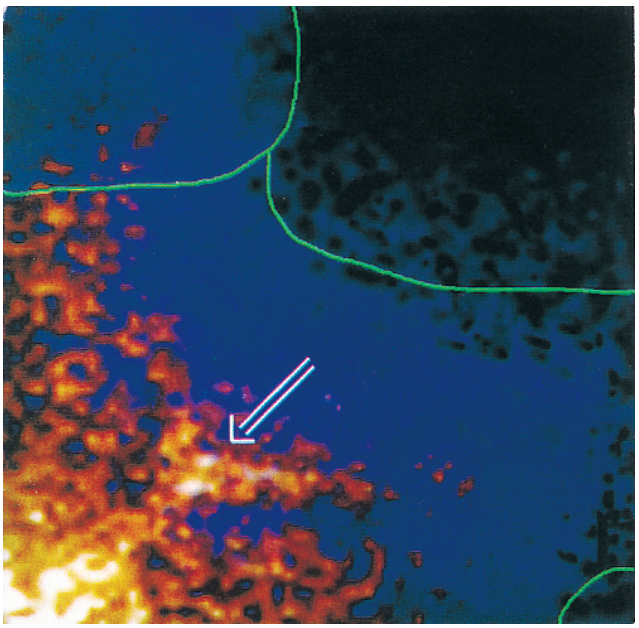

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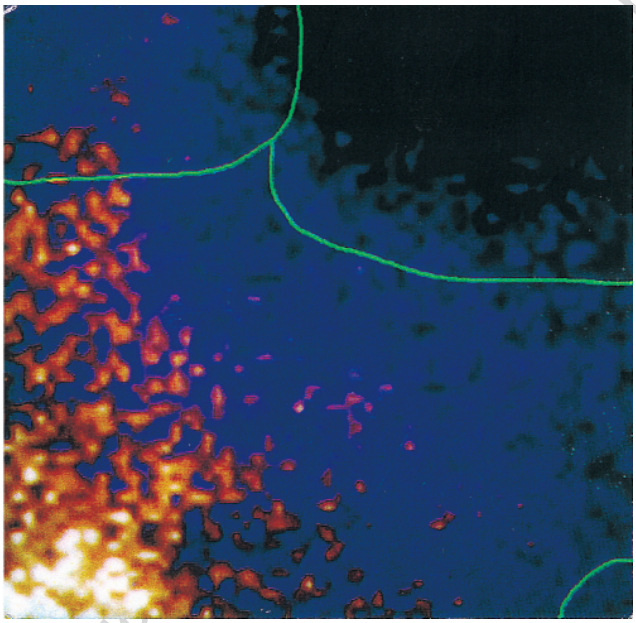

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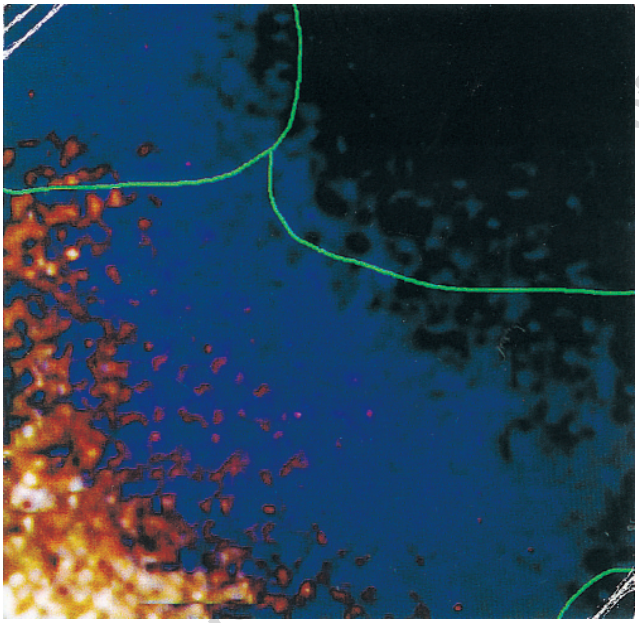

C

Figure 2. ^{99m}Tc-IL-2 scintigraphy performed in 1994 (A). This image of the neck and left shoulder was acquired 1 h after intravenous injection of 5 mCi of ^{99m}Tc-IL-2. Arrows show area of radiopharmaceutical accumulation corresponding to the left subclavia. The same examination was repeated in 1997 (B) and in 2000 (C): both show no significant tracer uptake in the region corresponding to the left subclavia.

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