Magnetic Resonance Imaging Diagnosis of Right Atrial Septic Thrombus Caused by Subclavian Catheter in a Hemodialysis Patient

Y.	Yunus	Erdem
T.	Tekin	Akpolat
O.	Oktay	Oymak
M.	Murat	Çolakoğlu
Ü.	Ünal	Yasavul
Ç.	Çetin	Turgan
Ş.	Şali	Çağlar

Nephrology Department, Hacettepe University School of Medicine, Ankara, Turkey

Dr. Yunus Erdem, Hacettepe Hastanesi, Nefroloji Bölümü, TR-06100 Ankara (Turkey)

Dear Sir,

Subclavian catheters are widely used in end-stage renal failure patients for hemodialysis. Thrombosis of the thoracic veins and right atrium and infection are well-known complications of subclavian catheters with increased morbidity and mortality. Phlebography, echocardiography, computerized tomography, and magnetic resonance imaging (MRI) are used to detect thrombosis of the thoracic veins and right atrium due to central venous catheters [1]. We present a hemodialysis patient with septic thrombus in vena cava superior extending into right atrium caused by subclavian catheter which was diagnosed by MRI while echocardiography revealed no pathology.

A 40-year-old woman with end-stage renal failure of unknown origin, who had been on hemodialysis program for 24 months was admitted to the hospital because of malfunctioning arteriovenous fistula. A femoral arteriovenous fistula was created and regular hemodialysis program was continued via a double lumen subclavian catheter while awaiting the maturation of her fistula. Catheter was removed 2 weeks after and a new one was inserted at the same side. She was hospitalized because of fever 3 weeks later. Her physical examination was unremarkable except fever. Her urine sediment was normal. The catheter was removed and gram stain of catheter's tip revealed grampositive cocci. Vancomycin plus rifampicin was begun. Blood cultures revealed methicillin-resistant *Staphylococcus aureus* which was sensitive to vancomycin. Urine culture remained sterile. Fever continued despite this regimen and serial chest X-rays documented progressive bilateral patchy infiltration of the lungs. Echocardiography was performed with presumptive diagnosis of right-sided endocarditis which did not reveal any pathology. MRI was performed and thrombus in the superior vena cava extending into the right atrium was shown (fig. 1). Septic thrombus in the lumen of the superior vena cava extending into right atrium was removed by surgical excision and the fever subsided.

Thrombosis due to central venous catheters is a very common problem and up to 73% of thoracic catheters may cause thrombosis after 14 days [2]. Right atrial septic thrombi due to central

venous catheters are uncommon, but an important complication because of high mortality rate [3, 4]. Echocardiography usually detects right atrial thrombus, but it did not reveal any pathology in this case while MRI did. Even with its high cost, MRI might be a useful diagnostic tool in assessing right atrial thrombus in hemodialysis patients if fever persists after catheter removal and appropriate antimicrobial therapy.

©1995 S.Karger AG, 1
 0028-2766/95/
 0692-0174\$8.00/0
 T2il
 CTIME 13:26 28*256 ISA 2 SE/M 1 SE 1200 30 1/ 2
 D 158 1/ 1 UOM 1.2
 OV 350
 THK 8,0/ 2.0
 FLICE 6/ 14. »OST -30.4 UGHT 7.8
 »UD -14.3
 L W 173:

Fig. 1. MRI of the thrombus at the entrance of the right atrium.

IARDIAK

PHILIPS GYROSCOPIC T5

References

- Wechsler JR, Spinn PW, Conant EF, Steiner RM, Needleman L: Thrombosis and infection caused by thoracic venous catheters: Pathogen-esis and imaging findings. *AJR* 1993; 160:467-471.
- Brismar B, Hardstet C, Jacobson S: Diagnosis of thrombosis by catheter phlebography after prolonged central venous catheterization. *Ann Surg* 1981;194:779-783. Kinney EL, Wright RJ: Efficacy of treatment of patients with echocardiographically detected right-sided heart thrombi: A meta-analysis. *Am Heart J* 1989;115:569-573.
- Horner SM, Bell JA, Swanton RH: Infected right atrial thrombus – An important but rare complication of central venous lines. *Eur Heart J* 1993;14:138-140.