

Renal Artery Duplication Anomaly In Our Patients

U Yetkin, T Gökto?an, K Ergüne?, A ?ahin, O Ergene, A Gürbüz, ? Yürekli

Citation

U Yetkin, T Gökto?an, K Ergüne?, A ?ahin, O Ergene, A Gürbüz, ? Yürekli. *Renal Artery Duplication Anomaly In Our Patients*. The Internet Journal of Biological Anthropology. 2007 Volume 2 Number 1.

Abstract

Duplication of the renal arteries and anomalies are in the vascular variations and generally they were observed during dissection of the cadavers.

In this study, we reported 2 cases of renal artery duplication under the light of current literature, diagnosed coincidentally while pre-operative evaluation for some other reasons was going on.

Diagnosis and treatment of congenital arterial anomalies are developed in plan and step by step. The first step in diagnosis is clinical examination. Invasive (especially peroperatively) and non-invasive several methods help in diagnosis.

INTRODUCTION

Congenital vessel disorders term includes all congenital organic diseases of the vessel system. The disorders of the arteries are; agenesis, aplasia, displasia, location anomalies, diameter anomalies, duplication, stricture and ectasies and rarely aneurysms.

CASE PRESENTATION

Our first patient was a 45 years old man. He had hypertension, which responded partially to triple antihypertensives, claudication under 100 meters and occasionally rest pain at both feet. Further investigations were performed because of the negative pulses at femoral arteries and the ASO anamnesis. Terminal aortography showed Leriche syndrome beside the left renal artery duplication anomaly. At left accessory renal artery and main renal artery level, high-grade stenoses of ostial parts were found (Figure 1).

Figure 1

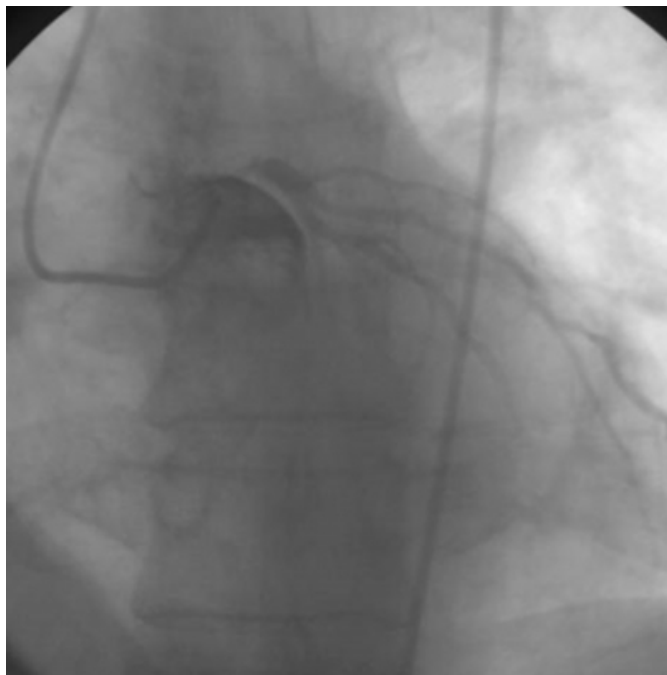
Figure 1



Our second case was a 54-year-old male. His coronary angiography revealed 85% stenosis of left main coronary artery and multiple stenoses at remaining coronary arteries. He was hospitalized into our clinic for urgent coronary artery bypass grafting (Figure 2).

Figure 2

Figure 2



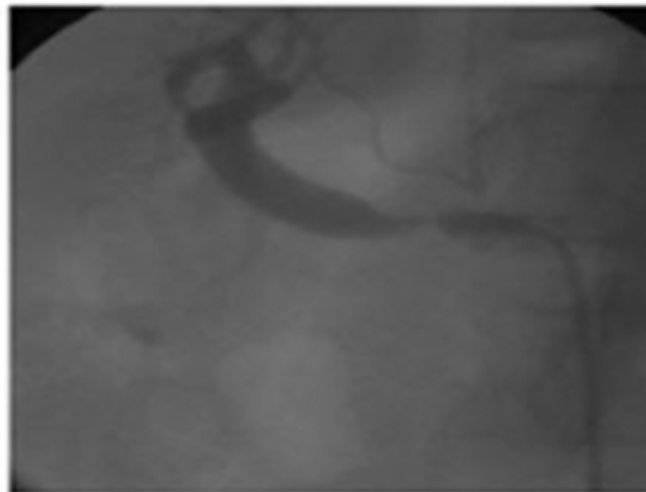
During this procedure, bilateral selective renal arteriograms were taken revealing that he had 2 right renal arteries. One renal artery feeding the upper pole had 95% stenosis whereas the other renal artery feeding the lower pole had 85% stenosis of the ostium (Figures 3,4 and 5).

Figure 3

Figure 3



Run 8



Run 10

Figure 4

Figure 4

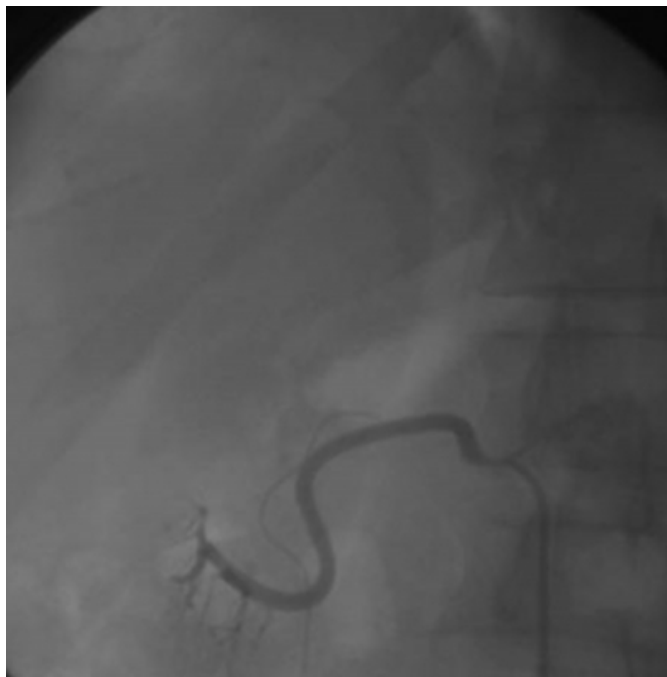


Figure 5

Figure 5



DISCUSSION

Multiple vascular variations, including duplication of the inferior vena cava, double renal arteries and anomalies of the blood vessels can be observed during dissection of the cadavers⁽¹⁾.

Renal artery enters via renal hilum and as a single artery in 71% of the population. In 15-20% of the population there are multiple renal arteries^(2,3). Two hilar arteries are seen in 10%, they arise from aorta as two separate branches and insert into renal hilum⁽⁴⁾. One hilar artery and a lower renal "pole" artery are seen in 6.9% of general population⁽²⁾.

Bordei et al present 54 cases of double renal arteries supplying one kidney and originating from the aorta in their study that subjected renal vascularization⁽⁵⁾. Most often, the supplementary renal artery originated from the lateral side of the aorta (58%). Examination of the renal approach showed that in 28 cases the supplementary renal artery entered the kidney through the hilum (proper supplementary renal artery), in 16 cases it was inferior polar, in five cases it was superior polar and in five cases the supplementary renal artery terminated in two branches, equal in caliber, one polar and the other hilar, thus showing a combined character, identical with the manner of termination of the main renal artery. In most of the samples the supplementary renal artery ended with a bifurcation inside the kidney, either into the renal sinus (proper supplementary renal artery) or inside the renal parenchyma (polar supplementary renal artery)⁽⁵⁾. Unusual mode of renal duplication may be confused with supernumerary kidney⁽⁶⁾.

Aucatoma et al correlate the anatomical and functional information obtained using MRI in comparison to the techniques traditionally used in the study of uropathies, and the other anomalies⁽⁷⁾. MRI provides the same information, both morphological and concerning functional quality, as well as vascular, as that obtained through traditional explorations. Irradiation with MRI is nil. At times it requires anesthesia. Its practice reduces costs, visits, missed workdays, and travel time⁽⁷⁾. We evaluated our first case with MRI.

CORRESPONDENCE TO

Doç. Dr. Ufuk YETKIN, 1379 Sok. No: 9, Burç Apt. D: 13 - 35220, Alsancak – IZMIR / TURKEY Tel: +90 505 3124906 , Fax: +90 232 2434848 e-mail: ufuk_yetkin@yahoo.fr

References

1. Xue HG, Yang CY, Asakawa M, Tanuma K, Ozawa H. Duplication of the inferior vena cava associated with other variations. *Anat Sci Int* 2007 ;82(2):121-5.
2. Bolca O, Unal S, Eren M, Dağdeviren B, Yildirim A, Tezel T. A Case Of Takayashu Arteritis Accomplished With Coronary-Pulmonary Artery Fistula And Abnormality Of Renal Arteries. *J Turkish Thorac Cardiovasc Surg* 2000;8(3):731-3.

3. Textbook of Medicine, Cecil, Saunders 5th edition, Philadelphia 1992,p.613.
4. Walsh P, Retik AB, Stamey TA. Campell's Urology, 1990;p.1385.
5. Bordei P, Sapte E, Iliescu D. Double renal arteries originating from the aorta. Surg Radiol Anat 2004;26(6):474-9.
6. Kaneoya F, Gotoh S, Yokokawa M. Unusual duplication

of renal collecting system mimicking supernumerary kidney-
-a case report. Nippon Hinyokika Gakkai Zasshi 1989
;80(2):270-3.

7. Cáceres Aucatoma F, Rodó Salas J, Capdevila A, Larena J. Comparison between MRI and the techniques traditionally used in the study of uropathies in children. Cir Pediatr 2007;20(3):159-65.

Author Information

Ufuk Yetkin, M.D.

Deputy Chief, Department of Cardiovascular Surgery, İzmir Atatürk Training and Research Hospital

Tayfun Gökto?an, M.D.

Specialist, Department of Cardiovascular Surgery, İzmir Atatürk Training and Research Hospital

Kaz?m Ergüne?, M.D.

Specialist, Department of Cardiovascular Surgery, İzmir Atatürk Training and Research Hospital

Aykut ?ahin, M.D.

Resident, Department of Cardiovascular Surgery, İzmir Atatürk Training and Research Hospital

Oktay Ergene, M.D.

Clinic Chief in Cardiology, Department of Cardiovascular Surgery, İzmir Atatürk Training and Research Hospital

Ali Gürbüz, M.D.

Clinic Chief, Department of Cardiovascular Surgery, İzmir Atatürk Training and Research Hospital

?smail Yürekli, M.D.

Specialist, Department of Cardiovascular Surgery, İzmir Atatürk Training and Research Hospital