Ruptured abdominal aortic aneurysm and horseshoe kidney

A case report

D. F. DU TOIT, H. LOUWRENS, J. KLOMPJE, J. H. GROENEWALD

Summary

A patient with a ruptured abdominal aortic aneurysm associated with a horseshoe kidney is reported on. The treatment included aneurysmectomy and insertion of an aortic Dacron prosthesis without division of the isthmus of the kidney.

The postoperative course was complicated by a stroke and mild renal failure, but the patient made excellent progress and was discharged from hospital 1 month after admission.

The anomaly of a horseshoe kidney is reported to occur in 1/500 - 1/1000 autopsies. These malformed kidneys usually function normally and are not more predisposed to renal disease than normal.

The association of an abdominal aortic aneurysm (AAA) and a horseshoe kidney is uncommon. This combination is extremely difficult to diagnose and is often unsuspected. The incidence of isolated ruptured abdominal aneurysms in association with a horseshoe kidney is very low. The coexistence of a horseshoe kidney and an AAA presents multiple challenges to the surgeon which include correct pre-operative diagnosis, difficult dissection of the aneurysm, preservation of renal vasculature, inadequate exposure, and difficulty with insertion of the prosthesis.

We report the successful treatment of a patient who presented with a ruptured AAA and an unsuspected horseshoe kidney.

Case report

A 59-year-old White man was referred from a peripheral hospital to Tygerberg Hospital because of an acute abdomen. Apart from mild hypertension, for which he had been receiving treatment for 2 months, he had had no previous illnesses of note.

The present history included a sudden onset of excruciating abdominal pain localized to the left iliac fossa, pain in the lumbar region and perineum and syncope, which had been present for 12 hours before admission.

The aneurysm was resected and replaced with a 22 x 10 cm woven Dacron aortic bifurcation graft, without division of the isthmus of the kidney. The graft was placed behind the kidney. The kidney was identified. The isthmus of the kidney was 1.0 - 1.5 cm thick and consisted of functioning parenchymal tissue. After proximal control of the aneurysm had been achieved the aneurysm was resected and replaced with a 22 x 10 cm woven Dacron aortic bifurcation graft, without division of the isthmus of the kidney. The graft was placed behind the kidney. The aneurysm had eroded the lumbar vertebra and had ruptured on the left posterolateral aspect.

The postoperative course was complicated by a stroke and mild renal failure, but the patient made excellent progress and was discharged from hospital 1 month after admission.

The management of the isthmus of the kidney is controversial. Some workers have advocated simple division of the isthmus with oversewing of the cut surfaces, which facilitates resection of the aneurysm and placement of the prosthesis. Unfortunately, a complicated vascular pattern and a functioning isthmus are
likely to coexist. The outcome of division of the isthmus in these cases is unpredictable. Under these circumstances resection of the aneurysm may be possible if the graft is placed posteriorly, as in our patient. A second alternative is autotransplantation of the kidney, but there is no recorded instance in the literature of successful autotransplantation of a horseshoe kidney following resection of a ruptured AAA.

Division of the isthmus of the kidney is not without danger. Firstly, damage to the renal pelvis as a result of surgical manipulation may produce spillage of infected urine which exposes the patient to the serious sequelae of an infected vascular prosthes. Secondly, division of the isthmus or an associated polar artery may result in infarction of renal tissue.1 Cayten et al.1 have suggested that the isthmus should only be divided when extended exposure is mandatory. Perhaps division of the isthmus should be strongly considered in ruptured aneurysms so as to facilitate control of bleeding from the aneurysm. They indicate that in elective cases it is frequently possible to mobilize the kidney and place the graft on the posterior aspect of the isthmus. They also point out that anomalous venous drainage is common in the presence of a horseshoe kidney, necessitating great care before unidentified vessels are ligated.

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REFERENCES

Carbon monoxide poisoning
Report of a case with 1-year computed tomographic follow-up

DIANNE B. MENDELSOHN, Y. HERTZANU

Summary
A case of acute carbon monoxide poisoning with 1-year computed tomographic follow-up is presented. The typical initial bilateral symmetrical low-density areas in the basal ganglia were found to have decreased markedly in size in the latter scan. These appearances coincided with the initial early oedematous phase of infarction ending in the late permanent necrotic stage.


Hypoxia resulting from carbon monoxide (CO) poisoning is due to the displacement of oxygen (O₂) from haemoglobin. CO competes with O₂ by diffusing across alveolar membranes and binding to haemoglobin. Haemoglobin has approximately 250 times the affinity for CO that O₂ has, and exposure to small concentrations of CO may therefore be clinically significant. Although all organs are affected by CO poisoning, the brain is the most important of these. Pathologically there is marked venous and capillary dilatation. Petechial haemorrhages and frequently early necrosis of the basal ganglia, most often the globus pallidus as well as the reticular zone of the substantia nigra, have been observed. The Purkinje cells of the cerebellar cortex and dentate nucleus are commonly involved, as are cortical cells.

Case report
A 26-year-old man who attempted suicide by gassing himself in a motor vehicle was admitted to an outlying hospital in a confused stuporous state. He regained consciousness a day later and was transferred to our hospital. On examination he was disin oriented for time and place with marked memory impairment and a mask-like facies. There were no extrapyramidal signs. Generalized brisk reflexes were present. The neurological examination was otherwise negative. Computed tomography (CT) showed bilateral symmetrical low-density areas in the globus pallidus. There was no change following intravenous contrast administration (Fig. 1). The patient was discharged shortly thereafter and followed up as an outpatient. One year later he again underwent scanning owing to persistent poor memory and inability to concentrate. CT showed a marked diminution in the