ARTERIAL DISEASE AS A CAUSE OF PAIN IN THE BUTTOCK AND THIGH

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When a patient attends an orthopaedic clinic with the complaint of pain affecting the calf of the leg, the possibility of arterial disease as a cause of the pain is usually remembered. When the pain is in the buttock or thigh, that possibility is often overlooked, although occlusion at the aortic bifurcation or in the iliac arteries can determine pain in such sites. Indeed, many of those who have studied the condition of thrombosis at the aortic bifurcation (Holden 1946, Elkin and Cooper 1949, Ortner and Griswold 1950, De Bakey et al. 1954, de Wolfe et al. 1954) believe that the condition is probably more common than is generally realised.

In the past four years (1952–55) nine patients have been seen at the Royal National Orthopaedic Hospital and one at St Mary's Hospital, in whom pain in the buttock or thigh was demonstrably caused by aortic or iliac occlusion. All, before being seen at these hospitals, had been considered to be suffering from conditions such as osteoarthritis of the hip or lumbo-sacral disc degeneration, and had received treatment accordingly. All these patients had escaped surgical treatment, but the author is informed by Professor C. G. Rob that he has seen a patient who underwent spinal fusion for pain from aortic thrombosis, and he himself has seen a patient who had had a laminectomy performed for pain in the calf due to a femoral thrombosis. Mistakes in the diagnosis of these cases may not only lead to mistaken treatment, but may also cause delay in giving correct treatment, and may lessen the chances of success. This is particularly important nowadays, when recent advances in arterial surgery (Rob et al. 1956) have given these patients the chance of getting relief from pain.

The following ten case histories show that certain characteristics of the pain were common to all the patients, and that in each case the diagnosis was indicated by the clinical features. All the patients in this series were men of over forty years of age; in all, the blood Wassermann reaction was negative and examination of the urine showed no abnormalities.

CASE REPORTS

Case 1—An Englishman aged fifty-seven years attended in July 1952. He had suffered for three years from pain in both buttocks produced by walking 100 yards and relieved in a few minutes by rest. All pulses in both lower limbs were present, but the popliteal and tibial pulses disappeared when he exercised to the point of pain. The blood pressure was 160/90. The radiographic finding of very extensive calcification of the aorta supported the diagnosis of intermittent claudication due to partial aortic occlusion. Aortography was not performed.

Case 2—A Scotsman aged forty-nine years was seen in September 1952. He had suffered for four years from pain in the left buttock coming on after walking seventy yards and relieved in a few minutes by rest. All pulses in the left lower limb were absent. The blood pressure was 150/90. A radiograph of the pelvis showed calcification in the site of the left common iliac artery. Retrograde arteriography (Fig. 1) supported the diagnosis of claudication due to left common iliac occlusion.

Case 3—An Englishman aged forty-seven years was seen in September 1952. He had a severe paralysis of the left lower limb from poliomyelitis in childhood, the gluteus maximus being the only muscle that had escaped. For six months he had suffered pain in the left buttock coming on after walking 150 yards and relieved in a few minutes by rest. The pulses were
Case 2—Retrograde iliac arteriography showing occlusion of the common iliac artery just proximal to its bifurcation.

Case 4—Abdominal aortography showing diffuse arterial affection with partial occlusion of the left common iliac artery.
present, though diminished, in the affected limb, but became markedly reduced on exercise to the point of pain. The blood pressure was 145/100. Radiography showed calcification in the site of the left internal iliac artery. Aortography was about to be performed when he died at home from a coronary occlusion. No post-mortem examination was made, but the clinical and radiological evidence pointed to a diagnosis of partial common iliac or of internal iliac occlusion.

**Case 4**—An Englishman aged forty-seven years attended in January 1953. He had suffered for one year from pain in the left buttock radiating to the back of the thigh and leg, coming on after walking fifty yards and relieved in a few minutes by rest. All pulses were present in both lower limbs, but the left tibial pulses disappeared when he exercised to the point of pain. Blood pressure was 210/100. Radiography did not demonstrate calcification in the site of the great vessels. Aortography (Fig. 2) showed diffuse arterial disease, with partial occlusion of the left common iliac artery.

**Case 5**—An Englishman aged sixty-eight years was seen in August 1954. He had suffered for several years from pain in the right buttock with radiation to the back of the thigh, coming on after walking 100 yards and relieved by rest. All pulses in the right lower limb were absent. The blood pressure was 180/110. Radiography showed a moderate amount of calcification in the site of the aorta and iliac vessels. Aortography (Fig. 3) showed partial right common iliac and complete right external iliac occlusion.

**Case 6**—An Englishman aged sixty-nine years attended in September 1953. He had suffered for five years from pain in both buttocks with radiation to the back of the thighs and to the calves, coming on after walking 100 yards and relieved in a few minutes by rest. Over the
past four years he had become aware of increasing impotence. All pulses were absent in both lower limbs, and the toes of both feet showed evidence of chronic ischaemia. The blood pressure was 130/85. Radiography showed no abnormal calcification. Aortography (Fig. 4) confirmed the diagnosis of occlusion at the aortic bifurcation.

**Case 7**—A Jew aged fifty-eight years attended in September 1952. He had suffered for one year from pain in the right knee and in the front of the right thigh coming on after walking 200 yards and relieved by a few minutes' rest. All pulses in both lower limbs were absent. The blood pressure was 160/80. Radiography showed moderate calcification in the site of the abdominal aorta. It is certain that this patient suffered from occlusion of the aortic bifurcation or of the iliac vessels, but he refused further investigation.

**Case 8**—A Jew aged fifty-six years was seen in June 1953. He had suffered for two years from pain in the front of both thighs, coming on after walking for about ten minutes, and relieved by rest. All pulses in both lower limbs were absent. The blood pressure was 150/80. Radiography showed no abnormal calcification. Aortography (Fig. 5) showed bilateral external iliac occlusion.

**Case 9**—An Englishman aged fifty-eight years was seen in September 1953. He had undergone a below-knee amputation in 1916 for a gunshot wound of the left foot. For two years he had suffered pain in the front of the left thigh coming on after walking 100 yards and relieved by rest. Pulses were absent in the affected limb. The blood pressure was 185/95. Radiography showed no abnormal calcification. Aortography (Fig. 6) showed a left common iliac occlusion.

**Case 10**—An Englishman aged sixty-four years attended in December 1955. He had suffered for one year from pain localised to the left buttock, which came on after walking for five
minutes and was relieved by rest. The left femoral pulse was only just perceptible, and the popliteal and tibial pulses on this side were similarly reduced. The blood pressure was 165/95. Radiography showed no abnormal calcification. Aortography (Dr David Sutton) showed a left common iliac obstruction.

**DISCUSSION**

It is the purpose of this paper to stress certain special points of importance in diagnosis, rather than to discuss the treatment of these cases.

1. All these patients were referred primarily to an orthopaedic department. All had previously had treatment on a diagnosis of an "orthopaedic" condition—osteoarthritis of the hip or lumbosacral disc degeneration.

2. Leriche (Leriche and Morel 1948) stated that the pain of aortic thrombosis differed from that found in true claudication, but the evidence from the present series and that of other workers (Holden 1946, Elkin and Cooper 1949, Ortner and Griswold 1950, De Bakey et al. 1954, de Wolfe et al. 1954) suggests that the pain differs only in site, not in character, from that affecting the calf in classical intermittent claudication.

3. The characteristics of the pain of vascular insufficiency were described and its mechanism was investigated by Lewis and his colleagues (Lewis, Pickering and Rothschild 1931). Their conclusion that the character of the pain is constant irrespective of its site, is well illustrated by the cases in the present series. A further good illustration of this point is furnished by the case of a man of sixty-eight years, seen in June 1952, who had pain of a "claudicant" nature in his right forearm resulting from an occlusion of the axillary artery. This constancy of the pain's character is indeed the most important single factor in making the diagnosis.

4. Gluteal and sciatic pain can be determined either by aortic or by common iliac obstruction. Pain in the front of the thigh can be determined by external iliac occlusion (Boyd and Jepson 1950), but it may also be caused by obstruction of the common iliac vessel.

5. Palpable tibial pulses do not exclude a diagnosis of vascular insufficiency in the lower limb. In three of the patients whose cases are described here, claudication was present with palpable tibial pulses. In all of these, the tibial pulses became impalpable after exercise to the point of pain. This "inverse response" to exercise of the pulsations in a limb affected by arterial disease was fully described by Ejrup (1948), and it is a test of great value in diagnosis.

6. Ischaemic changes in the peripheral parts of the limb are not necessarily a feature in these cases of proximal arterial obstruction. Only one of the ten patients studied here had marked peripheral ischaemic changes.

7. Radiography, by showing calcification in the site of the great vessels, is often a useful pointer to the diagnosis. It is suggested that in orthopaedic clinics, where attention is often directed largely to skeletal abnormalities seen on radiographs of the lumbar spine, closer search for evidence of aortic or iliac calcification might be rewarding.

8. The method of aortography used in these cases (Stripp 1954) does not require any expensive apparatus. It is a method of investigation which is simple enough to use and which, if care is taken, is not associated with any considerable hazards.

**SUMMARY**

1. Ten patients are described in whom pain due to arterial obstruction simulated pain caused by bone or joint disease or by disorder of the intervertebral disc.

2. The importance is stressed of arterial obstruction at the aortic bifurcation or in the iliac vessels as a possible cause of pain in patients attending orthopaedic clinics.

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REFERENCES


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