TOTAL KNEE REPLACEMENT IN PATIENTS WITH PARKINSON'S DISEASE

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Total knee replacements were performed on three patients with Parkinson's disease. The rehabilitation of all three was, however, hampered by inhibition of the extensor mechanism, hamstring rigidity and poor muscular co-ordination. Medical treatment of the disease did not help. None of the patients became mobile, and all three gradually weakened and died. We suggest that, at least in some patients with Parkinson's disease, knee replacement is contra-indicated.

The era of total knee replacement began just over a decade ago and results have been most encouraging. As far as we know, the fact that a patient being considered for knee replacement also has Parkinson's disease, has not previously been taken into account. This report documents our experience with three patients whose Parkinsonism appeared to compromise this otherwise successful procedure.

CASE REPORTS

Case 1. A 72-year-old lady with left-sided Parkinson's disease (controlled with L-dopa) had a severely deformed and painful osteoarthritic left knee. This was replaced with a Stanmore knee prosthesis. The knee was immobilised in a plaster cylinder for three weeks after the operation and all seemed well. On removing the plaster cast, however, the knee developed a flexion deformity which persisted and interfered with mobilisation. Skin traction was applied each night, but over the next few weeks the patient became weaker; her Parkinsonian rigidity increased in the knee and could no longer be controlled medically. Six weeks later a hamstring tenotomy was performed and the knee was immobilised in plaster for a further three weeks. Despite this, the flexion deformity recurred; subsequent radiographs revealed loosening of the tibial component of the prosthesis. For the first time since her admission Parkinsonian signs now appeared in the trunk and left hand. Amputation of the leg was advised but was refused, and three months later she died.

Case 2. An 82-year-old man, on medication for arteriosclerotic Menière's syndrome and gouty arthropathy, had gradually become crippled with a painful left knee. He also had Parkinson's disease, the signs of which were entirely confined to his face. His left knee was replaced by an Oxford meniscal prosthesis, but after operation he developed flexion deformity. The knee was therefore immobilised for three weeks in a plaster cylinder. As soon as this was removed his flexion deformity recurred and was resistant to treatment. Hamstring rigidity interfered with further rehabilitation and medical treatment was ineffective. He was then mobilised using a removable splint by day and skin traction at night. He developed retention of urine and mild uraemia which necessitated resection of the bladder neck. Six weeks later, when the knee splint was about to be discarded, he ruptured the quadriceps tendon just above the upper pole of the patella. The tendon was repaired and his knee immobilised once again in a plaster cast. Unfortunately the wound became infected. Amputation was recommended but he died of uraemia before this could be carried out.

Case 3. An 83-year-old woman with mild Parkinson's disease not requiring medication had an Oxford meniscal knee replacement for a painful arthritic right knee. She was assessed pre-operatively and it was felt that she would be able to cope with rehabilitation. Postoperatively she became confused and the knee was therefore protected for the first three weeks in a plaster cylinder. As soon as this was removed she developed hamstring rigidity and flexion deformity which could not be controlled medically. She gradually developed pain in the knee, and the quadriceps tendon eventually became detached from the upper pole of the patella. Because of her poor physical state, it was decided to treat the rupture conservatively in a plaster cylinder. In the meantime a breast lump was discovered and removed; a biopsy revealed a well-differentiated adenocarcinoma and she

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was treated with radiotherapy. She died of disseminated carcinomatosis six months later; during the whole of that period the flexion contracture of her knee was never overcome.

DISCUSSION

Total knee replacement failed in these patients because of persistent flexion contracture. There is little doubt that the operation itself induced the hamstring rigidity which caused the contracture; but whether it acted as a catalyst leading to progression of the disease is unclear. Nor is the

reason for the hamstring rigidity itself clear, but it could be a sequel to inhibition of the opposing quadriceps. Rehabilitation is difficult or impossible in these patients, since all voluntary movements are performed slowly in Parkinson's disease (Brain and Walton 1969). It may be, therefore, that, at least in some cases, Parkinsonism is a contra-indication to total knee replacement until methods to control the resultant rigidity can be found.

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REFERENCE

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