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Original Article

Recurrent atraumatic anterior hip dislocation: Treated by dual mobility system

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ABSTRACT

Aims: To highlight a case of recurrent atraumatic anterior hip dislocation management using a dual mobility prosthesis.

Methods: The stability of the patient's hip was assessed using X-ray and MRI scans. Upon the third spontaneous anterior dislocation it was decided with the patient's consent to undergo a total hip replacement. A piriformis sparing anterior approach was used with the insertion of a dual mobility bearing. This consisted of an uncemented porous titanium cup articulating with a 28 mm head in a 42 mm mobile polyethylene liner.

Results: Mobilising pain free at 6 weeks post operation with no further dislocations at 6 months follow up.

Conclusion: Dual mobility hip replacements was used successfully in our patient with recurrent atraumatic anterior hip dislocation.

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We report the case of a 56 years old male with recurrent atraumatic anterior hip dislocations. He sustained his first hip dislocation (Fig. 1) at the age of 49 when bending down to check his mail box. After reduction his hip functioned well for fourteen months until he sustained another anterior dislocation whilst walking on uneven ground. The third anterior dislocation occurred 4 months later while performing maintenance under his car. He was still able to return to manual work without pain after enlocation. One year later the patient complained of significant hip pain not controllable by analgesia. Limiting his exercise tolerance to 150 m. Radiographs confirmed advanced osteoarthritis with no evidence of avascular necrosis (Fig. 2). Given the patient's history of pain and

recurrent dislocations a dual mobility bearing hip replacement was opted for his management.

A piriformis sparing posterior approach was used with intraoperative findings of significant superior acetabulum wear. An uncemented porous titanium shell (Tritanium®, Stryker, Michigan USA) was inserted with a polished tapered Exeter stem (Stryker) cemented in the femur. A dual mobility bearing was used to decrease his dislocation risk,⁶ (MDM®, Stryker), with a 28 mm head held captively in a 42 mm dual mobility liner. On table testing demonstrated a stable range of motion, with full extension and no anterior or posterior instability. The post operative period was uneventful and the patient was discharged home on day 3 and mobilising pain

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Fig. 1 – Anterior hip dislocation.

free at 6 weeks. His hip remained stable at 6 months of follow up (Fig. 3).

Atraumatic anterior hip dislocation is a rare phenomenon with only six previous cases in the literature.^{2,4,7–10} Four cases were the result of low energy falls and the remaining two cases were in competitive dancers that involved no specific traumatic event. All six were young females between the ages of twenty three to thirty eight years.

Epstein described anterior dislocations in young healthy dancers during their routine. Dancers' ligaments tend to be more lax due to repetitive flexibility training, predisposing them to joint instability. Guyer et al reported cases of anterior dislocations post low energy falls. In those cases all of the patients showed some inherent quality that predisposed them to dislocation, ranging from having anterior capsule redundancy, small centre edge angles and dysplasia.

Our patient was a 56 years old male with cerebellar ataxia, having experienced three episodes of anterior dislocations due to low impact activity. His cerebellar ataxia may have contributed to the aetiology of recurrent atraumatic dislocation through instability. However our patient has not previously suffered from falls due to his ataxia. In addition our literature search revealed no previous reported cases of hip instability secondary to cerebellar ataxia.

Pre operative concerns about the stability of the total hip replacement lead us to choose a dual mobility bearing surface

Fig. 2 – Osteoarthritis.

Fig. 3 – Post operation.

(MDM®, Stryker). The dual mobility bearings are tripolar bearings, with a fixed porous coated or cemented metal cup, which articulates with a large mobile polyethylene liner. Into the liner a standard 22 or 28 mm head is inserted. The articulation between head and liner is constrained, while the articulation between liner and metal cup is unconstrained.

Dual mobility bearings marry two well known concepts in hip replacements, firstly the Charnley Low Friction Arthroplasty¹ demonstrated clinically and radiologically that smaller diameter heads produce smaller torques and less polymer wear. Secondly the McKee – Farrar⁵ concept recognised that the large head is intrinsically more stable than the small head, between metal shell and liner. Due to a more favourable head/neck ratio dual mobility bearings permit a larger range of motion before dislocation occurs with an increased jump angle.³ Dual mobility liners do not limit range of motion or cause high torques between the host bone/cup interface as constrained liners do.⁶ Patient was mobilising and discharged 3 days post operation. As of 6 months follow up there has been no complaints of pain or further dislocations.

In summary we report the first case of recurrent atraumatic anterior hip dislocation in a male with a history of ataxia. Treatment of his subsequent dislocations was successful with a dual mobility bearing hip replacement. The introduction of dual mobility bearings has been a useful addition where instability is of concern.

Conflict of interest

All authors have none to declare.

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