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CASE REPORT

Neuroblastoma : A differential diagnosis of irritable hip

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We present a case report concerning a neuroblastoma of the hip that presented as an irritable hip in a 33-month-old girl. In patients presenting with an irritable hip, neuroblastoma is suggested by anaemia and can be missed with an ultrasound of the hip.

Keywords : irritable hip ; neuroblastoma.

INTRODUCTION

Neuroblastoma is an embryonal tumour of the peripheral sympathetic nervous system. It is the third most common paediatric cancer, accounting for 8% of childhood malignancies and is the most common solid tumour of childhood (*2*).

CASE REPORT

A 33-month-old girl presented with difficulty in weight bearing on the left leg. There were no other local or systemic symptoms. On examination she walked with a limp, and movements of her left hip were painful and restricted. An ultrasound of the hip was normal. The patient was referred to a paediatric orthopaedic surgeon who diagnosed transient synovitis of the hip. With several days rest the symptoms settled for a month. The patient then presented with an irritable hip on the right side. An ultrasound of the hip showed a joint effusion with moderate synovial thickening, consistent with a diagnosis of an irritable hip. Blood tests in the form of full blood counts and C reactive proteins were normal.

A month later the patient presented for a third time with constitutional malaise and pain in both hips and knees. She was unable to walk and blood tests were performed which showed : Hb : 6 g/dl, WBC : 7×109/l, Platelets : 120×10^9/l, CRP : 278 mg/l and mean corpuscular volume (MCV) : 82 fl. Ultrasound of the hip and abdomen were performed and revealed a large mass (7 cm) superior to the right kidney, extending across the midline retroperitoneal structures and displacing the coeliac vessel. A diagnosis of neuroblastoma was confirmed with a CT guided biopsy and metastasis identified with a metaiodobenzylguanidine (MIBG) scan. Stage 4 neuroblastoma with raised urinary catecholamines and bone marrow infiltration was diagnosed.

DISCUSSION

Irritable hip is a known presentation of neuroblastoma. Wong *et al* (*6*) reported a case of a seven-year-old girl presenting with a transient synovitis

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of the hip which was later diagnosed as a stage 4 neuroblastoma. Aston (*1*) showed that 20 of 109 children with neuroblastoma studied over an eight-year period initially presented with an orthopaedic symptom such as hip pain, non-specific limp and limb weakness or back pain. The largest group involved the hip and was often misdiagnosed as suppurative arthritis. Aston (*1*) in his study found that the haemoglobin level is a useful tool to differentiate septic arthritis from neuroblastoma, as the haemoglobin level was significantly lower in patients with neuroblastoma. White *et al* (*5*) in a prospective study looked at 50 children with irritable hips and found that MRI identified all seven children with serious pathology whereas ultrasonography only diagnosed two patients. Ranner *et al* (*4*) concluded that MRI gave more morphological information than other techniques like ultrasonography. Lee *et al* (*3*) reported that MRI signal intensity alterations are seen in sepsis but not in transient synovitis and this makes MRI a good screening tool in children with hip pain.

This case illustrates three points. The first is that neuroblastoma can present as an irritable hip even in a young age group. The second is that anaemia in the presence of an irritable hip should alert one to the diagnosis of neuroblastoma. Thirdly, MRI may become the imaging modality of choice in the future for evaluation of an acute limping child where it is available.

CONCLUSION

Neuroblastoma should be considered as differential diagnosis in patients with an irritable hip. Haemoglobin estimation is helpful in the management of patients with symptoms of an irritable hip. An MRI of the hip should be considered where resources are available.

REFERENCES

1. **Aston JW Jr.** The orthopaedic presentation of neuroblastoma. *Orthop Rev* 1990 ; 19 : 929-932.
2. **Ater JL.** Neuroblastoma. In : Behrman RE, Kliegman RM, Jenson HB (eds). *Nelson Textbook of Paediatrics* ; 17th ed. WB Saunders, Philadelphia, 2003, pp 1709-1711.
3. **Lee SK, Suh KL, Kim YM *et al.*** Septic arthritis versus transient synovitis at MR imaging : preliminary assessment with signal intensity alterations in bone marrow. *Radiol* 1999 ; 211 : 459-465.
4. **Ranner G, Ebner F, Folter R, Linhart W.** Magnetic resonance imaging in children with acute hip pain. *Paediatr Radiol* 1982 ; 20 : 67-71.
5. **White PM, Boyd J, Beattie TF *et al.*** Magnetic resonance imaging as the primary imaging modality in children presenting with acute non traumatic hip pain. *Emerg Med J* 2001 ; 18 : 25-29.
6. **Wong M, Chung CH, Ngai WK.** Hip pain and childhood malignancy. *Hong Kong Med J* 2002 ; 8 : 461-463.