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Congenital spinal dermal tract: magnetic resonance imaging underestimates intradural pathology

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Introduction: Dermal sinus tract is a form of occult spinal dysraphism. The presumed aetiology relates to a focal failure of dysjunction resulting in a persistent adhesion between the neural and cutaneous ectoderm. Conservative management can lead to complications of spinal cord tethering, meningitis and local abscess formation. We present our experience of 74 cases of spinal dermal tract. We compare the findings from pre-operative magnetic resonance imaging and intra-operative exploration and investigate factors associated with an infective presentation.

Methods: 74 consecutive cases of spinal dermal tract treated with surgical resection between 1998 and 2010 were identified from the departmental operative database. Demographics, radiological and operative findings and clinical details were collected from the patient record.

Results: Surgery was completed without new post-operative neurological deficits in 71 of 74 cases (91%). 2 cases had post-operative urological dysfunction: 1 case with VARTER syndrome and 1 case with intradural dermoid. 1 child with uncomplicated dermal sinus tract had post-operative mild bilateral leg weakness which resolved completely. Magnetic resonance imaging (MRI) under reported the presence of both intradural tract (MRI 46%, operative finding 86%) and intraspinal dermoid (MRI 15%, operative finding 24%). Pre-operative sinus discharge and intra-operative identification of intraspinal dermoid (odds ratio 12.8, p=0.003) and (odds ratio 5.6, p=0.023) were associated with infective presentation. There was no significant association between the presence of intradural tract, discovered at operation, and an infective presentation.

Conclusions: Surgery for the treatment of spinal dermal tract carries a low morbidity. Whilst it seems intuitive that tracts without intradural extension carry a low risk of spinal cord tethering, it is not possible to reliable detect these cases using MRI imaging. Similarly intraspinal dermoid cannot be reliably excluded using MRI and carries an increased risk of infection. These points justify the surgical exploration of all spinal dermal sinus tracts.