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Significance of vesicoureteric reflux

Sir,

I was a little disturbed at the unsubstantiated conclusion made by Moncrieff and Whitelaw (*Archives*, 1976, **51**, 893) that vesicoureteric reflux (VUR) in the absence of a complicating urinary tract infection (UTI) does not cause renal damage. Although the majority of patients with VUR come to clinical attention because of a UTI, there is now compelling evidence from radiological studies in infants and children (Rolleston *et al.*, 1975), renal function studies in children (Aperia *et al.*, 1976), and morphological studies in pigs (Hodson *et al.*, 1975) that progressive renal damage may occur in the context of gross VUR. This damage may develop and progress in the continued absence of complicating UTIs. In addition, early surgery to correct gross VUR may lead to a resumption of normal renal growth despite the fact that successful antireflux surgery does not influence the incidence of subsequent UTIs (McRae *et al.*, 1974).

Moreover if intrarenal reflux can be shown, focal renal scarring may develop in the areas of affected renal parenchyma (Rolleston *et al.*, 1974; Uldall *et al.*, 1976; Bourne *et al.*, 1976). The significance of intrarenal reflux has been confirmed in studies of the pathogenesis of reflux nephropathy in the pig experimental model (Hodson *et al.*, 1975). Infection was not an essential factor in scar formation but it did intensify the scarring process. The main conclusion from these human and animal studies is that gross VUR, and not UTI, is essential for the development of renal damage. The observation that the severity of the VUR is the single most important determining factor as to whether renal damage will occur has been the major breakthrough in the understanding of this subject in recent years (Bailey, 1973).

The recent letter in your journal by Cowen (*Archives*, 1977, **52**, 254) should be regarded with caution. Cowen concluded that a micturating cystourethrogram was not worthwhile in the investigation of an infant with a UTI if the intravenous urogram was normal. This statement was based on a study of only 20 neonates and cannot be supported in the light of a substantial number of published reports (including, in this journal, Drew and Acton, 1976) which have shown that 50-60% of infants under

the age of one year with a UTI have VUR, and more importantly that in 8-13% of these the VUR is gross in degree. In the latter patients the intravenous urogram may appear normal. I agree, however, that a micturating cystourethrogram is not indicated if a good quality intravenous urogram has been shown to be completely normal in a child over the age of 4 years.

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Dr. M. Moncrieff comments:

We thank Dr. Bailey for drawing our attention to this point. In the discussion of our results we quoted Smellie and Normand (1975) who state that new renal scars 'almost invariably develop' in association with infection. We should have repeated this phrase in the summary. However, the point of our paper was that with a normal intravenous urogram (IVU) 'gross VUR' which 'is essential for the development of renal damage' is very unlikely to be present, being found in only 2 of 70 ureters in our series. Cystography is undoubtedly unpleasant and sometimes hazardous (McAlister *et al.*, 1974), and we feel that our suggestion of deferring cystography until a second infection occurs in those with a normal IVU is the lesser of two evils.

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