Complications of polyorchidism

• maldescent	40%
• torsion	15%
• inguinal hernia	30%
• hydrocoele	9%
• malignancy	6%

hydrocoele in 9%.^{1,5} The incidence of malignancy is about 6%, with one seminoma, three teratomas and one rhabdomyosarcoma occurring in reported cases.^{1,4} The risk of malignancy is probably related to the presence of dysplastic germinal epithelium and to maldescent which is similar to nonduplicated testes.

In most of the reported cases up until the 1980s¹ either one or both of the duplicated testicles were removed, many without any specific indication. In this case, as in other recent reported cases,^{2,5} neither testis was removed and both were fixed to prevent torsion. In our view there is no need to remove either testicle if they look normal, and particularly if the biopsy showed normal epithelium, as neither testicle is at higher risk of malignancy and monitoring is so easy. If the diagnosis can be made by ultrasonography¹⁻³ exploration is unnecessary, if the testes are normal and the patient is asymptomatic.

Three testicles can be of benefit, as they were to a man thus equipped who was granted permission by the fourteenth century Pope to have two wives.⁶

DC O'SULLIVAN
CS BIYANI
MR HEAL
Leighton Hospital,
Crewe, Cheshire, UK

Correspondence to Mr D O'Sullivan, Department of Urology, Royal Liverpool Hospital, Prescot Street, Liverpool L7 8XP, UK

- 1 Giyanani VI, McCarthy J, Venable DD, Terkeurst J, Fowler M. Ultrasound of polyorchidism: case report and literature review. *J Urol* 1987; 138: 863-4.
- 2 German K, Mills S, Neal DE. Polyorchidism. *Br J Urol* 1993; 72: 515.
- 3 Thum G. Polyorchidism: case report and review of literature. *J Urol* 1991; 145: 370-2.
- 4 Kulkarni J, Bhansali M, Tongaonkar H, Kama M, Borges A. Carcinoma in the third testis in a case of polyorchidism and persistent müllerian duct syndrome. *Eur Urol* 1992; 22: 174-6.
- 5 Ozok G, Taneli C, Yazici M, Herek O, Gokdemir A. Polyorchidism: a case report and review of the literature. *Eur J Pediatr Surg* 1992; 2: 306-7.
- 6 Ritchie HD. The testes and the scrotum. In: Harding Rains AJ, Ritchie HD, (eds) *Bailey and Love's Short Practice of Surgery*, 17th edn. London: HK Lewis 1977; p 1289-1315.

Doxorubicin-induced cardiotoxicity

Sir,

The report of Sriskandan *et al.*¹ highlights a major problem in the use of doxorubicin in curative malignancies. In their discussion of various strategies which have been tried to identify individuals at risk of doxorubicin-induced cardiotoxicity they omitted to mention the use of clinical pharmacology. In a

study of doxorubicin metabolites, Cummings *et al.*² found marked inter-patient variation in the pharmacokinetics of adriamycinol 7-deoxyglycone (the stable end-product of damaging anthracycline semiquinone drug-free radicals). Two patients out of 25 had high levels of adriamycinol 7-deoxyglycone and both developed clinical cardiac failure with total cumulative doses of doxorubicin below 300 mg/m. Subsequent animal studies showed the pharmacokinetics of adriamycinol 7-deoxyglycone follows closely its formation in the heart.³ Unfortunately as clinicians we have not tested this strategy on a large number of patients. Perhaps here is a predictive test of doxorubicin cardiotoxicity waiting to be used.

L SAMUEL
Western General Hospital,
Edinburgh EH4 2XU, UK

- 1 Sriskandan S, O'Brien M, Smith I, Collins P, Gore M. Aggressive management of doxorubicin-induced cardiomyopathy associated with 'low' doses of doxorubicin. *Postgrad Med J* 1994; 70: 759-61.
- 2 Cummings J, Milstead R, Cunningham D, Kaye S. Marked inter-patient variation in adriamycin biotransformation to 7-deoxyglycones: evidence from metabolites identified in serum. *Eur J Clin Oncol* 1986; 22: 991-1001.
- 3 Cummings J, Merry S, Willmott N. Disposition kinetics of adriamycin, adriamycinol and their 7-deoxyglycones in AKR mice bearing a subcutaneously growing Ridgeway Osteogenic Sarcoma (ROS). *Eur J Clin Oncol* 1986; 22: 451-60.

Ciprofloxacin - induced glottic angioedema

Sir,

Ciprofloxacin is a synthetic fluorquinolone active *in vitro* against most Gram-negative bacteria (including Enterobacteriaceae and *Pseudomonas aeruginosa*), Gram-positive bacteria (including penicillase-producing, nonpenicillase-producing, and methicillin-resistant staphylococci) and against *Chlamydia*, *Mycoplasma*, *Mycobacterium*, *Plasmodium* and *Rickettsia*.¹ From a dermatological point of view, rash, pruritus, and photosensitivity reactions may appear in less than 1% of patients receiving multiple doses of ciprofloxacin.² To our knowledge and after extensive medical literature review (Medline 1970-94), no cases of ciprofloxacin-induced glottic angioedema have been previously reported.

A 50-year-old man with a past history of type 1 diabetes and hypertension (treated with captopril) developed angioedema with involvement of the upper airway while receiving intravenous ciprofloxacin for urinary tract infection at the emergency room in our hospital. From 30 to 60 minutes after starting an intravenous infusion of 400 mg ciprofloxacin lactate, the subject experienced generalised pruritus, erythema, and prominent facial, lip and genital swelling with upper dyspnea. Four hours later, the patient noted a change in voice with hoarseness, inspiratory stridor, and asphyxia. An otolaryngologic evaluation showed laryngeal oedema and endotracheal intubation was needed. Epinephrine, high-dose intravenous corticosteroids, antihistamines, and oxygen were administered. The tube remained in place for five days until the episode was abated. Ciprofloxacin and capto-

Allergic reactions to ciprofloxacin

- urticaria
- fixed drug eruption
- toxic epidermal necrolysis
- angioedema

pril were withdrawn and the patient, who declared previous good tolerance to both drugs, was studied at the Allergy unit. C4, C3 and C1-inhibitor levels were repeatedly normal. Total serum IgE value was 160 IU/ml. Prick tests with ciprofloxacin, norfloxacin, and pipemidic acid were negative. Intradermal tests with 0.04 and 0.4 mg/ml ciprofloxacin were positive (papulae of 4 × 5 mm and 9 × 8 mm, respectively). Ten control subjects gave no reaction. Intradermal tests with norfloxacin and pipemidic acid and an oral challenge with captopril were negative.

Few cases of suspected allergic reactions to ciprofloxacin have been described (see box).³⁻⁵ Possible cross reactivity with other quinolones has been suggested.^{3,4} In the reported patient, the presence of a positive intradermal test with ciprofloxacin, together with previous good tolerance of the same drug, points to an IgE-mediated mechanism. A possible cross-reactivity with other quinolones cannot be ruled out because, even though cutaneous tests with norfloxacin and pipemidic acid were negative, definitive challenge tests were not done due to the severity of the reaction.

C VIDAL
J SUAREZ
M MARTINEZ
A GONZALEZ-QUINTELA
Departments of Allergy and
Internal Medicine,
Complejo Hospitalario Universitario,
Santiago de Compostela, Spain

Correspondence to C Vidal MD, Praza do Xuncal 1, 2ªA, Perillo, Oleiros, 15172 La Coruña, Spain

- 1 American Hospital Formulary Service. Quinolones: ciprofloxacin hydrochloride, ciprofloxacin lactate. In: McEvoy GK, Litvak K, Welsh OH, eds. *Drug Information 94*. Bethesda, Maryland: American Hospital Formulary Service, 1994; pp 467-78.
- 2 The United States Pharmacopeial Convention (USPC). Fluorquinolones systemic. In: USPC, ed. *Drug Information for the Health Care Professional*. Maryland: USPC, 1994; pp 1392-401.
- 3 Davila I, Diez ML, Quirce S, *et al.* Cross-reactivity between quinolones. Report of three cases. *Allergy* 1993; 48: 388-90.
- 4 Alonso MD, Martin JA, Quirce S, *et al.* Fixed eruption caused by ciprofloxacin with cross-sensitivity to norfloxacin. *Allergy* 1993; 48: 296-7.
- 5 Moshfeghi M, Mandler HD. Ciprofloxacin-induced toxic epidermal necrolysis. *Ann Pharmacother* 1993; 27: 1467-9.