Correspondence

Br Heart J 1980; **43**: 124

Complications of pulmonary vein angiography

Sir,

I read with interest the paper by Alpert and Culham¹ and the letter by Singh and Astley² published in *Br Heart J*, **41**: 727-9; 740. Alpert and Culham¹ reported extravasation of contrast material into a bronchus causing severe bronchoconstriction after a pulmonary vein angiogram. They suggested that it may be possible to avoid this complication by the use of an end-hole balloon catheter in wedge position, slow flow rates of contrast material, and low-pressure injection. Singh and Astley², commenting on this paper, have recommended a less wedged position of the catheter tip and a preliminary hand injection to check the suitability of the catheter position as well as withdrawal of the catheter immediately after the completion of the injection. We³ have injected 0.3 ml/kg body weight of contrast material via an end-hole catheter in a wedge position but have distributed the calculated contrast material over a two-second period so that the contrast could be delivered under low pressure (less than 100 psi). We have also suggested that the catheter be withdrawn into the left atrium immediately after injection. Since the publication of our report,³ we have performed pulmonary vein wedge angiography in six additional patients using the same technique. In each patient there was excellent visualisation of the ipsilateral pulmonary arteries, with no complications. Based on this we agree with slow flow rates and low-pressure injection,¹ but we suggest the use of a conventional end-hole catheter in the wedge position. Our

concern about the injection of large quantities of contrast material under high pressure into the pulmonary vein as suggested by Singh and associates⁴ is reinforced by the complication reported by Alpert and Culham.¹

On the basis of our experience, we will continue to recommend pulmonary vein wedge angiography for demonstrating pulmonary arteries when they cannot be visualised by conventional anterograde techniques. An injection of 0.3 ml/kg of contrast material, over a two-second period, under 100 psi of pressure, appears to be a safe and adequate amount for pulmonary vein wedge angiography.

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