CENTRAL SPINAL STENOSIS DUE TO PSEUDOGOUT

Sir,

I was interested in the brief report of a case of spinal stenosis due to pseudogout in your July 1994 issue (1994;76-B:672-3), having reported a very similar case of nerve-root compression in a 64-year-old patient with unilateral intermittent claudication (Dehais et al 1977). I agree that pyrophosphate deposition should be considered as a possible cause of nerve-root compression in patients with intermittent claudication suggestive of lumbar stenosis.

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Dehais J, Senegas J, Bauduceau B, et al. Sténose du canal rachidien lombaire au cours d'une chondrocalcinose articulaire diffuse. *Rev Rhum Mal Osteoartic* 1977;44:585-8.

Sadique T, Bradley JG, Jackson AJ. Central spinal stenosis due to pseudogout: a case report. *J Bone Joint Surg [Br]* 1994;76-B:672-3.

Author's reply:

Sir,

Thank you for the opportunity to comment on Dr Dehais' letter, which draws our attention to his case report. We have found no other such reports, but would point out that 99 cases have been described, most in the neurosurgical or radiological literature, of thickening of the ligamentum flavum due to deposition of calcium pyrophosphate crystals which has presented as cervical myelodysplasia (Baba et al 1993).

I therefore agree that such crystal deposition should be included in the differential diagnosis of nerve-root compression.

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Baba H, Maezawa Y, Kawahara N, et al. Calcium crystal deposition in the ligamentum flavum of the cervical spine. *Spine* 1993;18:2174-81.

SHOULD THE ROTAFLEX PROSTHESIS BE WITHDRAWN?

Sir,

Thank you for your rejection letter concerning this paper. I accept the criticisms of its retrospective nature, low rate of follow-up and of the fact that the prosthesis has since been 'modified'.

I would, however, be grateful if you would kindly reconsider the paper. Despite its shortcomings, it has a very important message for all orthopaedic surgeons in the UK who undertake total knee replacement and especially those who have used or continue to use the Rotaflex prosthesis. The unacceptable complication rate which we reported should lead to discontinuation of its use and also alert surgeons to the need to follow up every Rotaflex patient both clinically and radiologically, so that early loosening and femoral cortical erosion can be treated before the lamentable salvage operations of attempted knee fusion or amputation are necessary. This general message can also be applied to other fully constrained prostheses.

I would be most grateful if you would again review this paper, particularly in view of the fact that the Rotaflex is still being used in a number of units in the UK.

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Response by the Editor:

The paper had been discussed at length at an Editorial Board meeting before its original rejection.

In response to the above letter it was again reviewed at a full Board meeting. The majority opinion supported the original rejection in terms of the anecdotal nature of the paper and a belief that the prosthesis was little used, except for a few revision procedures.

The Board recommended, however, that the author's letter be published. Copies of the letters have been sent to the manufacturer.

Response by the manufacturer:

Sir,

Thank you for advising us that the Journal has recently received a paper reporting poor results with the above prosthesis at 10 to 12 years, and for allowing us the opportunity to respond. Although we have not yet reviewed Mr James's paper, we would like to offer the following general comments on the Rotaflex knee prosthesis.

From the stated follow-up, the prosthesis under review was the original Rotaflex I prosthesis, then marketed by D. Howse & Co. Ltd. Watt and Hughes (1987) reported satisfactory results in 15 patients followed for up to 44 months. These findings for short-term results were confirmed by Jones and Davies (1988) in an unpublished series of 53 cases reviewed at between 9 and 36 months. Following the company's acquisition by Johnson & Johnson, several design improvements were made and the Rotaflex II prosthesis was introduced in 1984.

With increased understanding of the limitations of fully constrained prostheses, the indications for the use of this prosthesis were also revised. We recommended that it be limited to use for the primary treatment of grossly unstable or severely deformed knees in low-activity, low-demand, older patients or for revision cases in which insufficient soft tissue or bone prevented the use of a semiconstrained design.

With the development and acceptance of modern semiconstrained modular prostheses, designed to deal with more challenging deformities and revision situations, the use of the Rotaflex II prosthesis has dramatically declined, and we accept that its role today is now extremely limited.

Whether the findings of Mr James's review paper are relevant to the current design of the Rotaflex II prosthesis in its narrow range of indications will depend on the original patient selection and the specific modes of failure. We look forward to reviewing this detailed information with the author in the near future.

D. W. EVANS
Johnson & Johnson Orthopaedics
New Milton
Hants, UK.

Watt NAR, Hughes SPF. Early results with Rotaflex rotating hinge knee replacement. *J Roy Coll Surg Edin* 1987;32:361-5.

FEMORAL VEIN BLOOD FLOW DURING THR

Sir,

We recently read the thought-provoking study in the November 1994 issue by Warwick et al entitled 'Measurement of femoral vein blood flow during total hip replacement' (1994;76-B:918-21). This confirmed the thoughts of many surgeons in that it demonstrated the cessation of blood flow in the femoral vein during total hip replacement (THR). The study, however, did not correlate the presence, degree or duration of this occlusion with the incidence of venous thrombosis, and we are left with the feeling that although the finding is of interest, it may or may not

be significant. It is reasonable to expect that intraoperative stasis is a factor in thrombogenesis but this paper does not provide firm evidence. Conversely, postoperative venous stasis has been correlated with deep-vein thrombosis (DVT) (McNally and Mollan 1993) and its prevention is agreed by Warwick et al to reduce DVT.

The study also showed the beneficial effect of the A-V Impulse System foot pump on intraoperative stasis, but no other method was mentioned. The foot pump was compared with electrical stimulation of the calf muscle by Laverick et al (1990) using Duplex scanning. Stimulation of the calf muscle gave significantly higher peak velocities and produced better emptying of the calf-vein sinuses. Stimulators are more convenient to use; the units are self-contained and can be enclosed entirely within the leg drapes with no need to cover connecting tubes. Perhaps electrical stimulation should be the method of choice during surgery, with the foot pump as a safe and effective method of preventing DVT during the postoperative period.

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Laverick MD, McGivern RC, Crone MD, Mollan RAB. A comparison of the effects of electrical calf muscle stimulation and the venous foot pump on venous blood flow in the lower leg. *Phlebology* 1990;5:285-90.

McNally MA, Mollan RAB. Total hip replacement, lower limb blood flow and venous thrombogenesis. *J Bone Joint Surg [Br]* 1993;75-B:640-4.

Warwick D, Martin AG, Glew D, Bannister GC. Measurement of femoral vein blood flow during total hip replacement: Duplex ultrasound imaging with and without the use of a foot pump. *J Bone Joint Surg [Br]* 1994;76-B:918-21.

Author's reply:

Sir,

Thank you for allowing me to reply. I agree that the connection between intraoperative stasis and subsequent thrombosis of the femoral vein is an assumed rather than proven fact. Most femoral-vein thrombi do *not* occur at the site of venous kinking, and thrombogenesis is therefore unlikely to be due to direct endothelial damage; it is more likely to be due to damage to valve

pockets. This is probably caused by stasis, which leads to distension, hypoxia, accumulation of toxic MMA monomer, and the concentration of coagulation factors and thromboplastins in the presence of diminished fibrinolysis.

McNally et al observe that our study did not correlate the presence, degree or duration of intraoperative stasis with future thrombosis. Since absolute stasis was present in all our patients, we could only have investigated the correlation between the *duration* of stasis and thrombosis. It would surely be unethical, however, to prolong deliberately intraoperative venous occlusion in a randomised group for the purposes of such a study. On existing evidence, the duration of stasis should be minimised whenever possible.

Electrical stimulation of the calf muscle has indeed been compared with the AV Impulse foot pump, using Duplex ultrasound to record popliteal venous flow, but the specific alterations to venous anatomy during total hip replacement were not reproduced in that study; there is no experimental evidence for the contention that electrical stimulation of the calf muscle would be beneficial during the operation. Furthermore, there is no reliable evidence from randomised clinical trials to support its use either during or after hip replacement. On the other hand, there are now three randomised studies of the use of the AV Impulse foot pump after hip replacement (Fordyce and Ling 1992; Bradley et al 1993; Santori et al 1994); each shows a dramatic reduction in the prevalence of postoperative thrombosis. The foot pump is convenient to use, and the connecting tubes are readily contained within the sterile polythene sheaths used by arthroscopists.

In conclusion, intraoperative femoral-vein stasis is likely to be an important factor in DVT after total hip replacement, and there is good experimental and clinical-trial evidence for the efficacy of the AV Impulse foot pump.

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Avon Orthopaedic Centre
Bristol, UK.

Bradley JG, Krugener GH, Jager HJ. The effectiveness of intermittent plantar venous compression in prevention of deep venous thrombosis after total hip replacement. *J Arthroplasty* 1993;8:57-61.

Fordyce MJF, Ling RSM. A venous foot pump reduces thrombosis after total hip replacement. *J Bone Joint Surg [Br]* 1992;74-B:45-9.

Santori FS, Vitullo A, Stopponi M, et al. Prophylaxis against deep-vein thrombosis in total hip replacement: comparison of heparin and foot impulse pump. *J Bone Joint Surg [Br]* 1994;76-B:579-83.