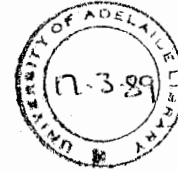


09 M.D
F 842



DISCITIS AFTER DISCOGRAPHY AND CHEMONUCLEOLYSIS

Robert D. Fraser

From the Department of Orthopaedic Surgery & Trauma, Royal Adelaide Hospital
and the Department of Pathology, University of Adelaide.

December, 1986

TABLE OF CONTENTS

	Page
1. Abstract	5
2. Introduction	7
3. Discitis After Discography: Incidence and Pathological Findings	
(a) Materials and Methods	12
(b) Results and Case Reports	19
(c) Discussion	36
4. Discitis After Discography: An Experimental Study	
(a) Materials and Methods	42
(b) Results	
(i) Sheep sacrificed at six weeks	50
(ii) Sheep sacrificed at weekly intervals	60
(c) Discussion	70
5. Discitis After Chemonucleolysis: An Experimental Study	
(a) Materials and Methods	
(i) In vitro study	73
(ii) In vivo study	74
(b) Results	
(i) In vitro study	79
(ii) In vivo study	79
(c) Discussion	102
6. Bibliography	107



ABSTRACT

Whilst infection following intradiscal injections has been recognized as a distinct entity, discitis after discography with contrast material and after chemonucleolysis with chymopapain has usually been attributed to an aseptic process or a chemical reaction to the agent injected. The aims of the study were to:-

1. review the incidence of discitis following discography and to describe the pathological findings in seven patients with discitis who came to open biopsy;
2. to test the hypothesis that discitis following discography is always due to infection and not to a chemical reaction from the contrast material;
3. to measure the effect of both chymopapain and Conray 280 on a wide range of bacteria in vitro; and
4. to test the hypothesis that discitis following intradiscal chymopapain is due to infection and not to a chemical reaction.

PART I The case records and radiographs of 432 patients who had undergone lumbar discography were reviewed. When an 18-gauge needle without a stylette had been used, discitis was diagnosed in 2.7% of 222 patients but styletted needles and a two-needle technique at each level reduced the incidence to 0.7%. Seven patients with discitis after discography had undergone anterior discectomy and fusion; in them the histopathological findings were of a chronic inflammatory response. Bacteria were isolated from the discs of three of the four patients who had open biopsy less than six weeks from the time of discography. These findings suggest that bacteria were initiators rather than promoters of the response.

PART II Multiple level lumbar discography was carried out in mature sheep, injecting contrast material with or without various concentrations of bacteria. Radiographs were taken and the discs and end-plates were examined histologically and cultured for bacteria at intervals after injection. None of the controls showed any evidence of discitis but all sheep injected with bacteria had typical radiological and histopathological changes by six weeks, though cultures were almost all negative. However, at one and two weeks after injection bacteria could be isolated, but usually not after three weeks.

PART III Chymopapain was found to have a bactericidal effect on all bacteria tested which was more pronounced with gram positive organisms whereas Conray 280 showed very little if any antibacterial effect after 48 hours.

PART IV Multiple level lumbar intradiscal injections of chymopapain were carried out in eight mature sheep. Sixteen discs in four sheep were injected with a mixture of reconstituted chymopapain and a staphylococcus epidermidis suspension and sixteen discs in another four sheep were injected with reconstituted chymopapain only. All sheep were sacrificed at six weeks and the discs and end-plates were examined by radiology and histopathology and nuclear material was cultured for bacteria. None of the controls showed any evidence of discitis whereas all sheep injected with bacteria had typical radiological and histopathological changes of discitis. However, in most cases where end-plate lesions were well established there was no evidence of bacteria at sacrifice. These findings support the opinion that discitis following intradiscal injection is always due to infection introduced by the needle tip.