

# European Spine Journal

## Letter to the Editor regarding the article "Prospective study using anterior approach did not show association between Modic 1 changes and low grade infection in lumbar spine." by Rigal J, et al.: Eur Spine J. 2016 Apr;25(4):1000-5.

--Manuscript Draft--

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<b>Full Title:</b>	Letter to the Editor regarding the article "Prospective study using anterior approach did not show association between Modic 1 changes and low grade infection in lumbar spine." by Rigal J, et al.: Eur Spine J. 2016 Apr;25(4):1000-5.
<b>Article Type:</b>	Letter to the Editor
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<b>Abstract:</b>	Using an anterior video-assisted approach, allowing biopsy without skin contact during microdissectomy, Rigal et al. recovered very low numbers of organisms from disc tissue samples. They concluded that the organisms recovered are most likely the result of contamination from the skin during surgical removal of tissue. We challenge this interpretation on the basis that the culture conditions employed in their study would not support the recovery of all anaerobic organisms present, including many <i>Propionibacterium acnes</i> , which has been recovered in studies by other groups, including our own. We believe that the low numbers of positive cultures observed in the study by Rigal et al. cannot be interpreted as absence of organisms from the disc tissues and evidence for contamination of tissues by other workers. Further studies using appropriate culture conditions with stringent conditions to minimise risk of tissue contamination are needed to help determine whether low grade infection caused by <i>P. acnes</i> plays a role in low back pain associated with Modic type 1 changes.

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4 The association between lumbar disc degeneration and chronic infection of the intervertebral disc  
5 remains controversial. There is some evidence for a relationship between the presence of bacteria  
6 and both low back pain with disc herniation and Modic Type 1 change associated with disc  
7 herniation and for causation (1). However, further work is needed to determine whether the  
8 isolation of organisms from intervertebral discs are a result of intraoperative contamination or  
9 represent low grade infection of the spine which contributes to chronic low back pain. Using an  
10 anterior video-assisted approach, allowing biopsy without skin contact, Rigal *et al.* (2) recovered very  
11 low numbers of organisms from disc tissue samples (6 from 313, 2%). They concluded that the  
12 organisms recovered are most likely the result of contamination from the skin during surgical  
13 removal of tissue. We challenge this interpretation on the basis that the culture conditions  
14 employed in their study would not support the recovery of all anaerobic organisms present,  
15 including many *Propionibacterium acnes*, which has been recovered in studies by other groups,  
16 including our own (3-5). Rigal *et al.* (2) state that they cultured the disc fragments in a brain-heart  
17 type culture medium and incubated at 37°C in an atmosphere enriched with 5 % CO<sub>2</sub> for 15 days.  
18 Whilst *P. acnes* is aerotolerant, it requires strict anaerobic culture conditions for efficient recovery  
19 and growth from clinical samples. In our studies we cultured five replicate fragments of disc tissue  
20 from each of 61 patients on blood agar plates incubated under strict anaerobic and five replicate  
21 fragments of disc tissue on blood agar under aerobic conditions in an atmosphere enriched with 5 %  
22 CO<sub>2</sub> (5). We obtained positive cultures in tissues from 26/61 (43%) patients under anaerobic growth  
23 conditions but only 6/61 (10%) under aerobic conditions. *P. acnes* was the predominant organism  
24 recovered under anaerobic conditions (22/26, 85% of the positive anaerobic cultures). Significantly,  
25 in every case where this organism was cultured anaerobically, it was not cultured from the duplicate  
26 tissue samples incubated under aerobic conditions. We believe that the low numbers of positive  
27 cultures observed in the study by Rigal *et al.* cannot be interpreted as absence of organisms from the  
28 disc tissues and evidence for contamination of tissues by other workers. Further studies using  
29 appropriate culture conditions with stringent conditions to minimise risk of tissue contamination are  
30 needed to help determine whether low grade infection caused by *P. acnes* plays a role in low back  
31 pain associated with Modic type 1 changes.  
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#### 39 Conflict of interest

40 None.

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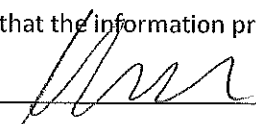
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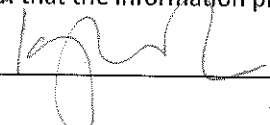
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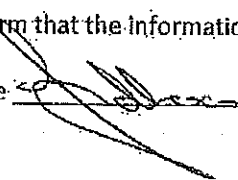
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