Histopathological findings of nucleus pulposus in lumbar brucellar spondylodiscitis

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From November 2012 to March 2016, lumbar nucleus pulposus tissues were acquired from 30 patients with brucellar spondylodiscitis (BS) during surgical treatments. The histopathology of the nucleus pulposus tissues was assessed using hematoxylin and eosin (HE), acid-fast, periodic acid–Schiff (PAS), Gomori methenamine silver (GMS), and Giemsa staining. HE-stained sections showed that the nucleus pulposus had begun to crinkle, and extracellular matrix had decreased; however, collagen fibrils had begun to grow, thicken, and arrange themselves more irregularly in the matrix. The number of viable and necrotic cells decreased and increased, respectively. We also further confirmed that the tissues we acquired comprised just the nucleus pulposus, and not the annular fibrosus or transition zone (Figure 1). Furthermore, acid-fast staining showed no positive acid-fast bacillus (Figure 2a1 and a2); PAS and GMS staining showed no positive fungi (Figure 2b1, b2, c1, and c2); and Gram staining showed no positive bacteria (Figure 2d1 and d2). However, 26/30 (86.7%) Giemsa-stained tissues were positive for Bacillus brevis (Figure 3). Histopathological

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FIGURE 1: Hematoxylin and eosin staining showed that the extracellular matrix had decreased, while collagen fibrils had begun to grow and become more irregularly arranged among the matrix (×200 and ×400).

FIGURE 2: Acid-fast staining showed no positive acid-fast bacillus (a1 and a2, ×200 and ×400); periodic acid–Schiff staining showed no positive fungi (b1, b2, ×200 and ×400); gomori methenamine silver staining showed no positive fungi (c1 and c2, ×200 and ×400); and Gram staining showed no positive bacteria (d1 and d2, ×200 and ×400).
examinations of nucleus pulposus of lumbar BS revealed characteristic features that are helpful for clinical diagnosis. Therefore, histopathological examinations should be considered as the main investigation method of choice for the diagnosis and management of BS, although conventional histopathological examinations show some difficulties in discriminating acute and other chronic forms of spondylodiscitis.

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REFERENCES

