Abstract

Aim: Peritoneal endometriosis is a chronic inflammatory disease particularly associated with macrophages. Of note, adipose tissues with fibrotic changes in the context of peritoneal endometriotic lesions are often observed during surgery. However, the characteristics of fibrotic adipose tissues in endometriosis are still unknown. In this study, we investigated the inflammatory status of retroperitoneal adipose tissues adjacent to pelvic endometriotic lesions.

Methods: Thirty-two patients who underwent surgical treatment were assigned to either the endometriosis (n = 16) or the control (n = 16) groups. Retroperitoneal adipose tissues around the uterus were collected from patients in both groups. Fibrosis was evaluated via Masson's trichrome staining. Macrophage infiltration, the expression of fatty acid-binding protein 4 (FABP4), and angiogenesis in the retroperitoneal adipose tissues were evaluated via immunohistochemistry. The mRNA expression levels of cytokines was also evaluated in the adipose tissues using real-time PCR.

Results: There was more fibrosis and angiogenesis in the adipose tissues adjacent to the endometriotic lesions with a significantly higher level of infiltration of macrophages and a predominance of the M1 type in the endometriosis group compared to the control group. Additionally, FABP4 positivity in the adipose tissues of the peritoneum was significantly higher in the endometriosis group versus the control group. Moreover, the mRNA expression levels of

FABP4, *VEGF*, and proinflammatory cytokines were also significantly higher in the endometriosis group.

Conclusions: Altogether, our results showed that the adipose tissue adjacent to endometriotic lesions are inflamed with fibrosis and angiogenesis.

Key words: adipose tissue, endometriosis, fatty acid-binding protein 4, fibrosis, inflammation.