

IMMUNOHISTOCHEMISTRY

The cells showed cytoplasmic positivity for GFAP (glial fibrillary acidic protein) and nuclear positivity for S-100. The IHC expression was suggestive of neural origin of proliferating cells in the omentum.

DIAGNOSIS

A diagnosis of gliomatosis peritonei was made on the basis of histomorphological features and IHC expression.

DISCUSSION

Gliomatosis peritonei, which is characterized by mature glial tissue in the peritoneum, is a rare condition usually associated with immature ovarian teratoma⁽¹⁻⁵⁾. Few cases of mature teratoma with gliomatosis peritonei have also been reported.⁽⁶⁾ Pathologically, gliomatosis peritonei is considered to be grade 0 teratoma according to the World Health Organization grading system used for immature teratoma.⁽⁷⁾ The presence of gliomatosis peritonei, regardless of its extent, is usually not associated with adverse outcomes,⁽⁸⁾ however, gliomatosis peritonei has been reported to transform into malignant glial neoplasms.^(9,10) Grossly, gliomatosis peritonei appears as individual nodules on the surface of the peritoneum or a mass-like lesion.⁽⁶⁾ Histopathologically, it is characterized by mature glial tissue in the peritoneum.⁽⁶⁾ On immunohistochemistry, the cells show positivity for GFAP and S-100. SOX2 is one of the key factors for maintenance of pluripotency in stem cells^(11,12) and its expression is required for inducing stem cells to differentiate toward the neural lineage.^(13,14) SOX2 is expressed in neural stem cells,⁽¹⁵⁾ in the majority of glial tumors,⁽¹⁶⁾ in immature teratoma cases,⁽¹⁵⁾ and in epithelium of endodermal origin in mature teratoma cases.⁽¹⁵⁾ The exact pathogenesis of gliomatosis peritonei is not known.

Several hypotheses regarding the origin of gliomatosis peritonei have been proposed in the literature including germ cell origin, as it is frequently associated with germ cell tumors, an origin from peritoneal stem cells that differentiate into glial cells under the stimulation of factors secreted by teratomas⁽¹⁷⁾ or transdifferentiation from subperitoneal mesenchymal cells or via induced pluripotent stem-like cells into glial cells.^(18,19) Clinically, gliomatosis peritonei is usually associated with favorable prognosis and managed conservatively.