Association of telomerase expression with recurrence of sacral chordoma

Originated from the remnants of the notochord in the process of fetal development, chordoma is a rare, slow growing and locally invasive low-grade malignant tumor with an annual incidence rate of 1/8,000,000 [1]. There are no standard prognostic markers in this disease. This retrospective study assessed telomerase in 20 patients of sacral chordoma (10 males and 10 females, aged 18–77 years). The samples of tumor tissues were obtained intraoperatively from all the patients, and samples of normal tissues 3 cm adjacent to the tumors were from seven patients. Follow-ups were scheduled every 3 to 6 months. Recurrence was evaluated from clinical examinations and imaging. Surgical resection samples were fixed in formalin and embedded in paraffin block before sliced into 4 μm in thickness for telomerase staining. Samples of colorectal cancer were used as the positive control and phosphate-buffered saline (PBS) was as the negative control. The scale of percentage of the positive cell number was defined as 0, 0%; 1, 1–25%; 2, 26–50% and 3, >50%. The scale of the color intensity was 0, none; 1, light brown; 2, brown and 3, dark brown. The overall score was summarized from both scales as 0, negative; 1–4, weakly positive and 5–6, strongly positive.

Among the 20 patients, eleven of them had relapse. Recurrence rates of 1, 3, 5 and 10 years were 5, 25, 55 and 90%, respectively. Telomerase expression was positive in all 20 cases (11 strongly positive and 9 weakly positive) (Fig. 1). The peritumoral normal tissues had telomerase expression negative. Positive expression of telomerase with chordoma recurrence was significantly higher than those without recurrence (P = 0.003). Telomerase expression in relapse was significantly different from that without recurrence (P < 0.001).

To our knowledge, 20 patients are the largest clinical series in sacral chordoma. Recurrence after surgical resection is a common occurrence. Our study demonstrated the association of telomerase expression with recurrence, suggesting that the telomerase expression could be another predictor of recurrence and survival.

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disclosure
The authors have declared no conflicts of interest.

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