Vasculogenic mimicry and hypoxia-inducible factor-1α expression in cervical squamous cell carcinoma

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ABSTRACT. In this study, the existence of vasculogenic mimicry (VM) in cervical squamous cell carcinoma was investigated. To this end, the relationship between hypoxia-inducible factor 1α (HIF-1α) and the development, infiltration, and metastasis of cervical squamous cell carcinoma was studied. Between January 2010 and December 2010, 67 human cervical squamous carcinoma tissue samples were collected and stained by CD34/periodic acid-Schiff double staining to detect the existence of VM. HIF-1α expression was analyzed by immunohistochemistry. The relationship between VM and HIF-1α was also analyzed. Normal cervical tissues (20 cases) from patients who had uterine surgeries in the same period were collected as controls. In the cervical squamous carcinoma tissues, positive rates of VM and HIF-1α were 38.81% (26/67) and 64.18% (43/67), respectively. This was significantly higher than those in the normal cervical tissues [0 (0/20); P < 0.05]. VM rates in cervical squamous carcinoma tissues from patients with different pathological grades, Federation of Gynecology and Obstetrics (FIGO) stages, and lymph node
metastasis states were also significantly different (P < 0.05). In addition, significant differences in HIF-1α positivity rates were observed among patients with varying tumor sizes and lymph node metastasis states (P < 0.05). Positive correlation was found between VM and HIF-1α (r = 0.339, P < 0.05). To summarize, we found VM in cervical squamous carcinoma; high expression of HIF-1α may promote VM formation, as well as cervical squamous cell infiltration and metastasis.

**Key words:** Cervical neoplasms; Cancer; Squamous cells; Hypoxia-inducible factor 1α; Immunohistochemistry; Vasculogenic mimicry