

Titanium mesh

Ma et al. explored the clinical effects of [three-dimensional printed](#) preformed [titanium cranioplasty mesh](#) combined with [latissimus dorsi muscle flap](#) free [transplantation](#) in the [treatment](#) of [wounds](#) with [skull defect](#) after radical surgery of [squamous cell carcinoma](#) in the [vertex](#).

A [retrospective observational study](#) was conducted. From January [2010](#) to December [2019](#), 5 patients with [squamous cell carcinoma](#) in the [vertex](#) accompanied with [skull invasion](#) who met the [inclusion criteria](#) were admitted to the [Second Affiliated Hospital of Air Force Medical University](#), including four [males](#) and one [female](#), aged 50 to 65 years. The original lesion areas ranged from 5 cm×4 cm to 15 cm×8 cm. The titanium mesh was prefabricated via three-dimensional technic based on the result the scope of skull resection predicted with [computerized tomography](#) three-dimensional reconstruction before surgery. During the first stage, the [soft tissue](#) defect area of [scalp](#) (8 cm×7 cm to 18 cm×11 cm) after tumor enlargement [resection](#) was repaired with the preformed [titanium mesh](#), and the titanium mesh was covered with [latissimus dorsi muscle flap](#), with area of 10 cm×9 cm to 20 cm×13 cm. The thoracodorsal artery/vein was anastomosed with the [superficial temporal artery/vein](#) on one side. The [muscle](#) ends in the [donor](#) site were sutured together or performed with [transfixion](#), and then the [skin](#) on the back were covered back to the donor site. On the 10th day after the first-stage surgery, the second-stage surgery was performed. The thin intermediate thickness [skin graft](#) was taken from the anterolateral thigh to cover the latissimus dorsi muscle flap. The duration and intraoperative blood loss of first-stage surgery were recorded. The postoperative muscle flap survival after the first-stage surgery and skin graft survival after the second-stage surgery was observed. The occurrence of complications, head appearance, and recurrence of tumor were followed up.

The average first-stage surgery duration of patients was 12.1 h, and the intraoperative [blood loss](#) was not more than 1 200 mL. The muscle flaps in the first-stage surgery and the [skin grafts](#) in the second-stage surgery all survived well. During the follow-up of 6-18 months, no complications such as exposure of titanium mesh or infection occurred, with good shape in the recipient sites in the vertex, and no recurrence of tumor.

Three-dimensional printed preformed titanium mesh combined with latissimus dorsi muscle flap free transplantation and intermediate thickness skin graft cover is an effective and reliable method for repairing the wound with skull defect after extended resection of squamous cell carcinoma in the vertex. This method can cover the wound effectively as well as promote both recipient and donor sites to obtain good function and appearance ¹⁾.

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