**Background and aim.**The mandible is frequently affected by tumor masses present in the oral cavity and is included in the tumor ablation procedure, with major functional and esthetic consequences for the patient. A method of high current interest in mandibular reconstruction is based on the use of free vascularized iliac crest grafts, followed by reconstruction using dental implants. **Material and methods.** This study presents the case of four patients benefiting from this treatment method, and monitors the treatment stages and their clinical evolution after mandibular reconstruction and dental implant placement. **Results.** The postoperative evolution of the patients was favorable, with the integration of the iliac crest grafts and dental implants. After prosthetic loading, the masticatory as well as the esthetic function of the patients was restored to a standard close to the initial one. **Conclusions.**This mandibular reconstruction method proved to be effective, with a high degree of reliability and a significant improvement of the patients’ quality of life.

***Key words:*** mandibular resection, free vascularized flap, iliac crest graft, dental implant