



Fig. 1



Fig. 2



Fig. 3

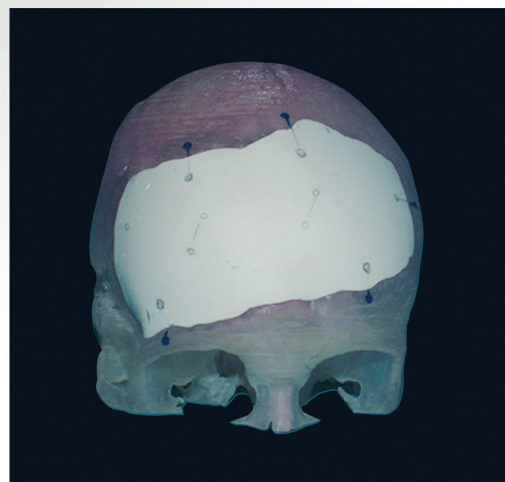


Fig. 4

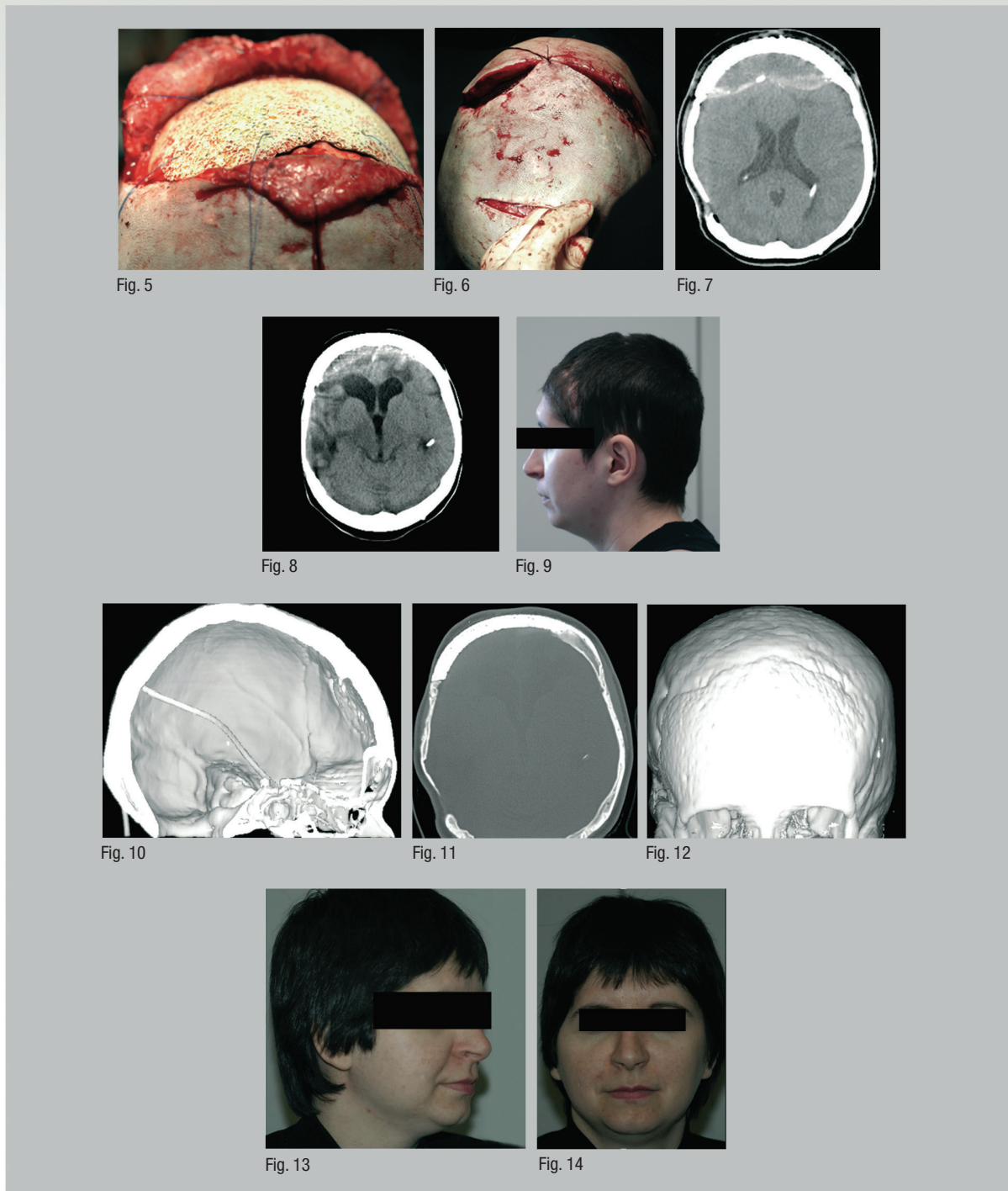
CustomBone Service

Female, 30-years old: The patient was brought under observation for an extensive bilateral frontal skull defect and skin atrophy on overlying tissues. This patient had a long history of surgeries which started after a first cranial trauma with a temporal bone fracture and right epidural haematoma. This surgical site was later revised in various operations due to a recurrence of the haematoma. Initially, the cranial reconstruction was performed with a preserved autologous bone graft but then bilateral frontal-polar amputation was performed due to an opercular and epidural infection and the formation of subdural abscesses. Various attempts were concurrently made with skin expanders to repair skin defects resulting from the infections.

A ventricular-peritoneal shunt was also created due to post-traumatic hydrocephalos.

Neurologically, the patient presented only discrete disinhibition, while the physical examination of the skull showed total loss of the frontal skullcap up to the supraorbital margin and layering of galeal tissues on the skull base with local dystrophic and cicatricial aspects (Fig. 1, 2 and 3). Therefore, the surgeon proposed to concurrently perform the application of the CustomBone porous hydroxyapatite implant and galeal plastic surgery to cover the implant. The implant was designed thicker than the data provided by the 3D CT scan to partly reduce extradural space located under the frontal part of the implant caused by the outcome of frontal lobectomies (Fig. 4).

Bifrontal Skull Defect Resulting from an Autologous Bone Graft Infection



Skin dissection, preparation of dural plane and bone edge implant fixation sites were fundamental in order to preserve good skin vascularization. To ensure good vascularization during the surgery, the vessels were monitored with an intraoperative microDoppler monitoring technique. The implant skin cover (Fig. 5-6) was obtained by anterior transposition of skin from the apex, which was in turn covered with a free skin graft taken from the inner thigh. The post-operative CT scan showed a small serous build-up in the empty space under the implant (Fig. 7).

Three months after surgery the CT scan (Fig. 8) showed a well-placed implant with minimum extradural space and a more than satisfactory aesthetic result (Fig. 9).

Eight months post-operative, the encephalic CT scan highlighted an advanced degree of fusion at the bone implant interface (Fig. 10-12) and an excellent aesthetic outcome (Fig. 13-14).