

## Presentation

### □ **Cranial demolition and reconstruction**

Neurosurgery has evolved beyond the primary goal of saving and prolonging lives, and technological advances have allowed attention to be focussed on the finer points of such interventions, namely the need to reduce invasiveness (microsurgery) and develop alternative methods of preserving structure and function (neuronavigation and brain mapping). No longer can the neurosurgeon concentrate on functional aspects without sparing a thought to aesthetic outcomes. Nowadays, preserving even the visible surface of the craniofacial bones, the access site, is a priority. Hence, careful attention must be paid to both the choice of approach and the means by which it is accomplished, not to mention the reconstruction phase, which must aim to fully restore function and aesthetics. It is no longer acceptable, for example, for the clumsy repositioning of the temporal muscle after pterional access. Instead, the surgeon must balance the needs of functional recovery with the patient's desire for craniofacial restyling and good aesthetic outcomes, which will go a considerable way to alleviating any psychological and social distress caused by their condition. While unsightly craniotomy scars or cranial irregularities resulting from life-saving surgery may once have been accepted, and even worn with pride, nowadays they are far from welcomed by the majority of neurosurgery patients. Thus, technologically advanced tools and materials should be made available to surgeons planning reconstruction and patients must be informed as to their existence.

It goes without saying that this method of interven-

tion will, by its very nature, involve the collaborative effort of a multidisciplinary team, united behind a common goal: the functional, aesthetic and physiognomic recovery of the patient. In this context, as skilled builders know, while a conservative approach to reconstruction involves greater initial expenditure in terms of time and money, it yields far more satisfactory and long-lasting results. Moreover, as this approach has the advantage of being able to resolve and/or prevent post-surgical complications, a considerable burden on the health care provider, it may even be the cheaper option in the long term.

In future, scarce attention paid to neurosurgical restyling could also lead to an increase in medicolegal suits, as the modern-day patient is better informed and no longer accepting of craniofacial unsightliness as a consequence of neurosurgery. Indeed, this issue is already visible on the horizon, as cases requiring therapeutic cranioplasty have reached 20-25 cases per million inhabitants of the EMEA area (Europe, the Middle East and Africa) in the past decade, undoubtedly due to the exponential increase in decompressive craniectomies (post-traumatic, following strokes, etc.). In Italy, for example, it is thought that the number of new therapeutic cranioplasty cases per year has surpassed 1,500. Of these, roughly a third of patients are afflicted by a large ( $> 25 \text{ cm}^2$ ), complex defect, and approximately 10% require surgery due to destructive pathologies of the skull, which entails, in addition to reconstruction of the cranium, the removal of the affected area.

The aim of this monograph is therefore to discuss, al-

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beit in brief, what is currently considered an indispensable option in neurosurgical practice - cranial demolition/reconstruction in a single operation and with the aid of made-to-measure implants. In addition to the surgical technique, the pathologies that will necessitate such intervention, its advantages in rehabilitation terms, the corollary functional neuroradiology investigation methods, the materials available and the medicolegal rationale behind its widespread implementation are also discussed. Although we are aware

that this is only a starting point, a springboard, as the ongoing technological advances in this sector rapidly render today's state-of-the art obsolete, we hope that it will be of great interest to professionals operating in the here and now.

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