Prof. Di Rocco is an internationally recognized pediatric neurosurgeon who has performed more than 12,000 neurosurgical operations on brain and spinal cord tumors, hydrocephalus, arachnoid cysts, craniosynostosis, cerebral and spine malformations (hemimegalencephaly, cortical dysplasia, lipomyelomeningocele, myelomeningocele, spinal lipoma, Chiari type I malformation), neurophacomatoses, and epileptic disorders.

Craniosynostoses are a heterogeneous group of congenital malformations of the skull and the facial skeleton which are characterized by impaired and distorted cranio-facial development and abnormalities in the cerebral blood and cerebro-spinal fluid circulation. In the most severe forms visual and respiratory problems due to the reduced volume of the orbits and the air pathways may jeopardize child’s life. Two main groups can be distinguished: simple and complex. The simple craniosynostoses depends mainly on the involvement of one cranial suture and therefore have a specific and clinically recognizable appearance (dolicocephaly, scaphocephaly from the early closure of the sagittal suture, trigonocephaly from the early closure of the metopic suture, brachycephaly from the ealy closure of the coronal suture or both lambdoid sutures, plagiocephaly from the early closure of half coronal suture (anterior plagiocephaly) or one lambdoid suture (posterior plagiocephaly). In complex craniosynostoses the pattern of cranial suture involvement is more complex, often evolving in time. One or more cranial sutures may undergo a premature fusion with a variable resulting shape of the head. The associated developmental anomalies of the facial skeleton contribute to the facial shape abnormalities and functional visual and respiratory impairment. Hydrocephalus and Chiari type I malformation are frequent accompanying disorders.
which may requires specific surgical corrective measure. Once classified according to morphological criteria with the eponym of the scientists who first defined them (e.g Apert’s, Crouzon’s, Pfeiffer’s syndromes), nowadays complex craniosynostoses are distinct on the grounds of the underlying molecular disorder as the same genetic defect may be clinically translated into different morphological pattern. Due to the evolutive character of these forms of craniosynostosis the age at intervention and the late prognosis can me difficult to establish. The affected subjects required a multidisciplinary management which can be extended through infancy, childhood and adolescence.

Craniosynostoses represent one of the main research and clinical field of interest of Prof. Di Rocco, who has introduced new personal operatory techniques (namely for the management of trigonocephal and scaphocephal to avoid the impact of the residual surgical scar). He has published numerous scientific contributions on the subject.

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