

FP35

Multiloculated hydrocephalus in preterm infants: a surgical challenge

Andrea Carai¹, Paolina Giuseppina Amante¹, Carlo Efsio Marras¹, Francesco Portaluri¹, Teresa Fasano¹, Raffaella Messina¹, Alessandro De Benedictis¹, Emidio Procaccini¹, Andrea Dotta², Cinzia Auriti², Paolo Palma¹

¹ *Neurosurgery Unit, Department of Neurosciences and Neurorehabilitation, Bambino Gesù Children's Hospital, Rome, Italy*

² *Department of Neonatology, Bambino Gesù Children's Hospital, Rome, Italy*

Introduction: Multiloculated hydrocephalus is a challenging clinical condition with a complex pathogenesis that occurs in a minority of pre-term children with post-hemorrhagic/post-infective hydrocephalus. Multiple ventricular shunt procedures, endoscopic cyst fenestrations and open surgical procedures have been reported to benefit these patients. Therapeutic rationale should be to simplify ventricular anatomy and stabilize the hydrocephalus with a minimum possible number of ventricular shunts. However, there is no consensus on the optimal treatment and its timing. We present our experience in this controversial field.

Methods: We reviewed all hydrocephalus cases referred to the Neurosurgery Unit at the Bambino Gesù Children Hospital in Rome in the last 3 years. Data were obtained from clinical charts and radiology reports. Multiloculated hydrocephalus was defined as presence of more than one extraventricular cyst in association to ventricular enlargement. Number and type of surgical procedures were recorded for this subpopulation and radiology images and clinical records were reviewed in detail.

Results: We were able to identify 6 children diagnosed with multiloculated hydrocephalus, accounting for 2% of all hydrocephalus cases. All 6 patients were very low birth-weight showing intraventricular hemorrhage soon after birth and had evidence of CSF infection during the follow-up. Average number of surgical procedures per patient was 13. Procedures included: navigation assisted ventricular and cystic shunt placement, endoscopic cyst wall fenestrations and robotic assisted procedures. Open surgery was performed in a single case of cerebello-pontine angle cyst.

Conclusion: Multiloculated hydrocephalus is a challenging condition to treat. As previously reported, multiple procedures were needed before stabilization of the clinical picture. Neuroendoscopy, intraoperative navigation and robotics represent a significant advancement in the care of these children.