

# Failed ventriculoperitoneal shunt as treatment of infantile hydrocephalus

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Hydrocephalus is a common and complex condition caused by physical or functional obstruction of cerebrospinal fluid flow that leads to progressive ventricular dilatation affecting 1.1 in 1000 infants.<sup>1</sup> From 2013 to 2017, at our hospital, there were 321 cases of hydrocephalus (178 male and 143 female) with a mean age of 18.5 months, who were treated by placing a ventriculoperitoneal shunt. In low-income settings, complications are common and, among our cases 42 (13%) had complications such as shunt dysfunction, leaking from the anus, oral cavity, scalp or abdominal wall, scalp infection, liquorrhea, and paralytic ileus. The reasons of these complications are lacking of well-trained professionals and inappropriate equipment. In our cases adult drainage equipment was used owing to the lack of pediatric ones.

We reported two failed outcomes of the application of ventriculoperitoneal shunt. In the first case, the shunt was performed when the baby was two months old. Due to the weakness of the health system, he was lost to follow-up. The parents came back only in the seventh month because the baby was irritable, crying, in pain and vomiting. He presented with the drainage coming out of his mouth (figure 1) after perforation of some viscera,



**Figure 1** Failed ventriculoperitoneal shunt with drainage coming out of the mouth.



**Figure 2** Failed ventriculoperitoneal shunt with drainage coming out of the umbilical scar and the relative X-ray.

likely the stomach. Although X-ray is the first step in order to drive the surgery in high-income and low-income settings, like in our hospital, it is not always possible to perform X-ray. In this case, we just removed the drainage and placed another one on the other side. In the second case, a 5-month-old baby arrived in critical condition with the drainage coming out of the umbilical scar (figure 2). In this case, it was possible to perform X-ray and then, as in the previous case, we removed the drainage and placed another one on the other side.

These cases highlight that, in low-resource settings, well-trained professionals and appropriate equipment are lacking, and an accurate diagnosis is not possible. It is mandatory to strengthen the healthcare system in order to improve the management of these diseases in deprived countries.

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