

# The use of autologous cord blood in the treatment of medulloblastoma in infant

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## Introduction

The use of umbilical cord blood in autologous transplantation of haematopoietic stem cells in the treatment of solid tumors has been only rarely published. With regard to unsatisfactory results in the treatment of primitive neuroectodermal tumors/medulloblastomas in infants, myeloablative or semimyeloablative chemotherapy with stem cells rescue is recently the treatment of a choice. The opportunity to use the child's own cord blood enables us to begin the therapy immediately without previous separation of peripheral blood stem cells in bigger infants or taking bone marrow from smaller infants.

## Case report

**Family history:** 19-year-old mother's sister died of leukemia (therefore child's cord blood was collected, processed and stored by Eurocord Slovakia)

**Case history:** during a preventive examination of 4-month-old boy there were found out faster growth of cranium and deviation of bulbs down

**Neurological examination:** syndroma of increased intracranial pressure

**Craniospinal MRI:** lobular tumor arising from vermis cerebelli with peritumoral oedema, other smaller tumors around the bottom of fourth ventricle and on the surface of the left cerebellar hemisphere, obstructive hydrocephalus, without spinal metastasis /Figures 1-6/

**Staging examinations:** cytological examination of cerebrospinal fluid was normal, no evidence of extraneuraxial metastasis

### Treatment

**Surgery:** initially VP shunt was placed, followed by infratentorial craniotomy and complete resection of tumors, with MRI validation within 48 hours postoperatively

**Histology:** Medulloblastoma – desmoplastic type

**Postoperative treatment:** six cycles of induction chemotherapy were added postoperatively (vincristine 0,05 mg/kg, carboplatin 16 mg/kg, cyclophosphamide 90 mg/kg in day 1 – modified according to UK CCSG PNET of the CNS in children under 36 months of age /CNS 1999/) with stem cell rescue by autotransfusion, taken from child after stimulation by G-CSF and last three times by own cord blood, every cycle resulted in hematological toxicity gr.IV., without serious infectious or hemorrhagic complications ;

induction therapy was followed by local radiotherapy of the dose of 45 Gy ;

sequentially the treatment was continued with the consolidation, by four cycles of less intensive chemotherapy (vincristine 1,5 mg/m<sup>2</sup> day 1, 8, 15, lomustine 75 mg/m<sup>2</sup> day 1, cisplatin 70 mg/m<sup>2</sup> day 1) every six weeks.

### Result

The boy is now 54 months after the surgery and 42 months after the completion of the oncologic treatment, without any signs of disease, with normal neurological and psychological find ( initially with the moderate motoric retardation).

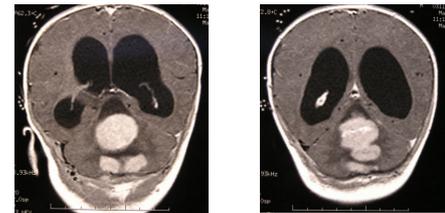
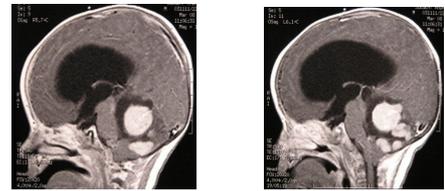
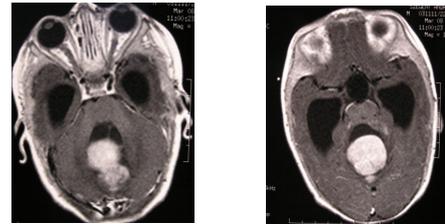


Figure 1-6  
MRI initially in March 2004

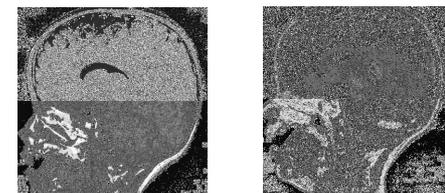


Figure 7,8  
MRI in June 2008



## Conclusion

Umbilical cord blood has become a valuable alternative source of haematopoietic stem cells for allogenic, but in special situations also for autologous transplantations. It seems to have an importance to encourage parents to bank their children's cord blood for autologous use or for allogenic use for a sibling.