

## Answers to the Medical Quiz

- A1. Figure 1 is showing an infant with anencephaly. In figure 2 we see meningomyelocele with partially epithelialised sac.
- A2. Both abnormalities result from defect in closure of the neural groove and failure to form the neural tube. Anencephaly is a defect in the anterior neural tube while meningomyelocele is that of the posterior (caudal) neural tube.
- A3. The recurrence risk for defects of neural tube closure is 5% for parents who have had affected offsprings. In other words recurrence risk in high risk women is 10 times the risk in general population. This includes about equal risk for either anencephaly or meningomyelocele.
- A4. Yes, these abnormalities may be prevented to occur in the high risk pregnant women if treated with folic acid.

The neural tube is normally completely fused by 28 days. The malformation appears to be a defect in closure of the neural groove to form an intact neural tube, if the anterior portion of the neural groove fails to close anencephaly ensues. As a result the unfused fore-brain develops partially and then degenerates. Other abnormalities include an incompletely developed calvarium and alterations of various degrees in the facial and auricular development. If the mid-or

caudal neural groove fails to close it can give rise to meningomyelocele<sup>1</sup>.

The role of folate and other vitamins in prevention of neural tube defects is controversial<sup>2</sup>. Recently, the British Medical Research Council (MRC) co-ordinated a large multinational randomised, double-blind study of 1195 pregnancies in women with previous histories of children with neural tube defects. Supplementation with 4 mg of folate before and during pregnancy reduced the risk of neural tube defect to 28% that of unsupplemented women. Multivitamins without folate had no protective effect. No harm from folate therapy was detected and the authors recommend folate treatment for all women with a previously affected pregnancy who may bear more children<sup>3,4</sup>.

### REFERENCES

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3. MRC Vitamin Study Research Group. Prevention of neural tube defects of the Medical Research Council Vitamin Study. *Lancet* 1991;338:131-7.
4. Leber SM. Congenital malformations of the nervous system. *Current Opinion in Paediatrics* 1992;4:915-20.