NOVEL TECHNIQUE OF SHEET PLASTINATION

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In the rapid imaging technique used for the medical examination and diagnosis such as magnetic resonance imaging, computed tomography and ultrasonography require an in depth study of sectional anatomy. Sheet plastination of specimens provides material for the study of sectional anatomical structures (von Hagens *et al*., 1987). Western world uses P 35 or P 40 with the accelerator and hardner for sheet plastination as described by Weber *et al*. (2007). The purpose of the present study was to find an easier and more cost effective method for sheet plastination.

Entire brain from an embalmed buffalo calf was removed and was frozen in the deep freezer for two days. Later the specimen was sliced with the help of a knife into one cm pieces starting from the olfactory lobe to the spinal cord (Fig.1). These were placed in 10 % formol saline to bring the sections to a normal status. Later the sections in a serial order were dehydrated in three changes of acetone with an interval of three days. The sections were infiltrated in melted jelly wax for five minutes and later infiltrated cross section of brain with melted jelly wax are placed in the mould prepared out of glass plate. Once the jelly wax was solidified, the block was removed and the section was covered on its upper and lower surface. Such sections were serially arranged and fixed on a long glass sheet with quick fix (Fig.2). Before infiltrating into the melted wax, the sections were stained for distinction between grey and white mater by Berlin Blue method after fixation in 10% formal saline (Tompsett, 1970).

The serial section of the brain produced by the jelly wax gave clear delineation between grey and white mater of the sections (Fig.3). The traditional P-35 and P-40 plastination technique are unique means for slice preservation (von Hagens *et al*., 1987, 1994; Barnett *et al*., 2005). Weber (1992) described the polyester technique and suggested excellent reference material for interpretation of medical diagnostic images such as MRI and CT scan.

However they suggested that monitoring of exothermic reaction to keep the temperature rising too high was a drawback in this process. In the present study the jelly wax was used at a room temperature without exothermic reaction and there was no charring of the tissue. The Berlin Blue staining technique demonstrated differentiation between the grey and white mater of the brain sections. The jelly wax is easily available in the market and was much cheaper compared to the resins used by the western world. Such specimen will be

of a great use for the developing countries for the preparation of sheet plastination. The advancement of CT scan and MRI in the diagnostic method under veterinary medicine is yet to be established. However with the development of science this will become the diagnostic tool in the veterinary science. During this time the novel jelly wax sheet plastination technique will be of great value.

Summary

The frozen brain was sliced at a thickness of 1 cm. Then the sections were placed in 10% formol saline and then dehydrated in 3 changes of acetone for 3 days. After dehydration sections were infiltrated with melted jelly wax for 5 minutes. All the infiltrated sections were placed in melted jelly wax and allowed to solidify. Then the sections were covered with glass sheets and serially arranged in a long glass sheet. Such specimen will be of a great use for the developing countries for the preparation of sheet plastination. This can be used for the detailed study of CT scan and MRI in the diagnostic method under veterinary medicine.

References

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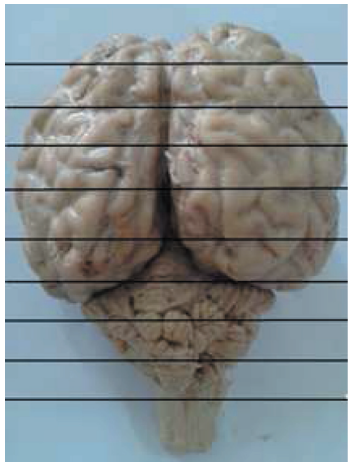

Fig. 1. Photograph showing slicing of brain

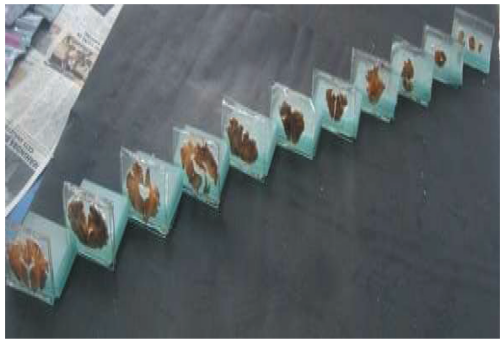

Fig. 2. Photograph showing the serially arranged section

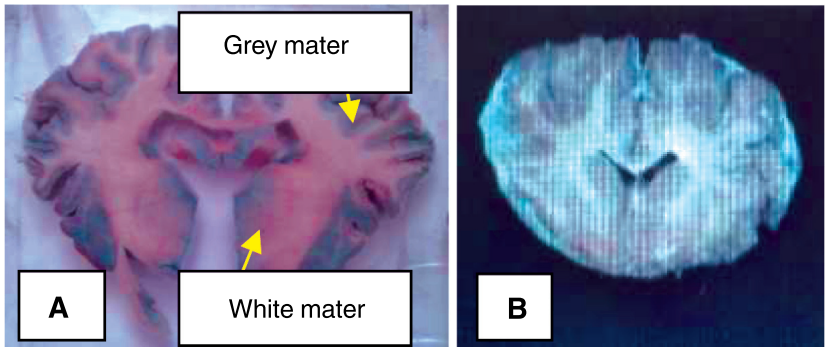

Fig. 3. Photograph showing delineation of grey and white mater of brain using berlin blue staining (A) and unstained (B

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