Suction biopsy in Hirschsprung’s disease

M H J KURER, J O N LAWSON, AND H PAMBAKIAN
St Thomas’ Hospital, London

SUMMARY Seventy two children with symptoms and signs consistent with Hirschsprung’s disease had full thickness and suction rectal biopsies performed. Results were identical with both methods, except for one case of total aganglionosis of the colon. Full thickness biopsy no longer has a place as a screening method.

In the management of chronic constipation Hirschsprung’s disease may be diagnosed on the basis of radiological investigation, anorectal manometry, and rectal biopsy. Though x ray films and manometric studies may be highly suggestive, the definitive diagnosis requires rectal biopsy.  

The classical method of rectal biopsy involves taking a full thickness of rectal mucosa and underlying muscle, requiring general anaesthesia and suturing of the biopsy wound. The possible complications necessitate inpatient management, and its morbidity precludes its use as a screening procedure.

The introduction of suction rectal biopsy of mucosa and submucosa represents a considerable advance. Biopsy requires neither general anaesthesia nor suturing, may be carried out even on outpatients, is suitable for all ages, and rarely leads to complications.

Several teams have reported false negative results when compared with full thickness biopsy. We investigated over 2000 children with chronic constipation and suspected Hirschsprung’s disease and performed suction biopsies on 400 of them. To assess the validity of the suction results we are reviewing all the cases (72) in which full thickness biopsies were also carried out, either at a formal resection or at upper partial sphincterotomy.

Patients and methods

Suction biopsy specimens were taken from 72 patients aged from a few weeks to 17 years. They were suspected of having Hirschsprung’s disease. Some biopsy specimens were taken without anaesthesia and others under general anaesthesia just after manual evacuation, anorectal manometry, or anal dilatation. Biopsy specimens were taken from the posterior wall of the rectum at intervals of 2, 3, 4, and 5 cm from the anal verge with a Quinton multipurpose biopsy machine.

These patients either came to formal bowel resection or, on failing to improve after repeated anal dilatations, received a therapeutic extended upper partial internal sphincterotomy, during which a full thickness biopsy specimen was taken from the edge of the wound before suturing the mucosa.

All biopsies, full thickness or suction, were treated in the same manner. After orientation, they were frozen in iso-pentane cooled in liquid nitrogen before 8 μ sections were cut on a cryostat. Sections were stained with a modified Karnovsky-Roots technique and also with routine haematoxylin and eosin stains. The tissues were then fixed in 10% formol saline, and serial sections of paraffin blocks were examined for the presence of ganglion cells. In some of the suction biopsy specimens in which enough submucosa was included ganglion cells could be seen in some of the sections.

A diagnosis of Hirschsprung’s disease was made if larger than normal nerve fibres in increased numbers were seen in the lamina propria and muscularis mucosae at suction biopsy. At full thickness biopsy not only were the nerve fibres in the lamina propria and the muscularis mucosae assessed, but the presence or otherwise of ganglion cells and the size of the nerve trunks in the submucosal and intermyenteric plexuses were also assessed. All sections were examined by the same histopathologist without reference to previous biopsies.

Results were correlated independently by another person, and no patients who had had both sorts of biopsy were excluded.

Results

Seventy two patients were analysed. Of these, 54 showed normal nerve fibres on suction biopsy. In eight serial sectioning showed ganglion cells in the submucosa. Full thickness biopsy specimens showed normal nerve bundles and ganglion cells in the submucosal and myenteric plexuses. In 17 cases, cholinesterase staining showed an increased size and number of cholinergic nerve fibres both in the lamina propria and the muscularis mucosae at suction biopsy. In addition, full thickness biopsy specimens showed the typical hypertrophied nerve trunks of Hirschsprung’s disease in the submucosal
Acquired toxoplasma encephalitis

A J COTTRELL

The Children’s Hospital, Sheffield

SUMMARY  Toxoplasma was the cause of encephalitis in a 4 year old boy. He recovered completely after treatment with pyrimethamine and sulphadimidine. Toxoplasma encephalitis has a high mortality, and active treatment is recommended.

In childhood encephalitis it is unusual to discover a treatable cause. I report a case of encephalitis in which there was serological evidence of a toxoplastic aetiology.

Acquired toxoplasma encephalitis

A J COTTRELL

The Children’s Hospital, Sheffield

SUMMARY  Toxoplasma was the cause of encephalitis in a 4 year old boy. He recovered completely after treatment with pyrimethamine and sulphadimidine. Toxoplasma encephalitis has a high mortality, and active treatment is recommended.

In childhood encephalitis it is unusual to discover a treatable cause. I report a case of encephalitis in which there was serological evidence of a toxoplastic aetiology.

References

Case report

A 4 year old boy was well until October 1983 when he had a generalised convulsion. Three weeks later he began to have recurrent convulsions, which increased in frequency, and he became ataxic. On transfer to Sheffield in mid-December he seemed to be fully orientated, but had gross truncal ataxia, bilateral intention tremor, and dysarthria, although no nystagmus. There was no evidence of raised intracranial pressure, cranial nerve palsy, or limb weakness. He was receiving sodium valproate and phenytoin.