CASE REPORTS

INTESTINAL THRUSH

A REPORT OF TWO CASES IN YOUNG INFANTS

BY

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The rarity of intestinal thrush, occurring either as a complication of oro-pharyngeal or oesophageal thrush, or as a primary infection, warrants the publication of two cases recently observed by us. The affected infants were both under two months old at death. Both were prematurely born, one at home and admitted to hospital in a moribund condition, and the other very prematurely born and nursed in a maternity hospital.

Infection of the mouth with the fungus *Monilia albicans* is common in young infants. The incidence of oral thrush is particularly high in nurseries and in artificially-fed infants owing to the ease with which the infection is spread in these circumstances. It is unfortunate that oral thrush is usually regarded as a benign condition unworthy of thorough treatment, for the risk that the infection may spread down the oesophagus and beyond is always present. Routine post-mortem examinations in maternity and children's hospitals have shown that thrush oesophagitis is not an uncommon complication of oral or pharyngeal thrush. The infection spreads to the gastric mucosa in only a small proportion of cases of thrush oesophagitis, however, and involvement of the intestinal mucosa is rare. Ludlam and Henderson (1942) reported twenty cases of thrush oesophagitis in a maternity hospital during a four-year period. This serious complication of oral thrush, demonstrated post-mortem by one of us (A.R.M.), was regarded as the cause of death in thirteen instances. The second of the two cases of intestinal thrush recorded here was mentioned by these authors in the pathology section of their paper. Ebbs (1938) recorded a series of twenty-eight cases of acute oesophagitis in infants under ten months old who were observed in a children's hospital over a period of three years. The condition was caused by the thrush fungus in twenty-two of these cases. None of them showed any gastric involvement, but small pin-point ulcers were found in the colon in two.

The mycelial strands of the thrush fungus may penetrate deeply into the mucosa of the oesophagus, stomach or bowel, readily invading lymphatics and veins (vide Ludlam and Henderson), and lesions in distant parts of the body may follow infection of the blood-stream. The organisms would appear to be destroyed in the blood as a rule, for pyaemic lesions are rare. Nevertheless, lesions have been reported

in the following tissues: brain, lungs, kidneys, joints, bones. Infection of the following surface tissues in infants has also been recorded: trachea and bronchi, vagina, prepuce, conjunctiva, middle ear and mastoid cells, skin.

Case reports

Case 1. Margaret McG., born January 20, 1942, died February 16, 1942, aged one month.

HISTORY. A firstborn illegitimate child who was born at home of a twenty-year-old mother. The birth weight was about 5 lb. The infant was breast-fed for three days only, 'owing to difficulty with fixing and sleepiness.' It was then given cow's milk and water in equal parts by spoon. Progress was said to have been satisfactory up to the age of three weeks. The appetite then deteriorated and the mouth 'bled when touched.' Two or three days later, the mother noticed a white coating on the mucosa of the mouth and the baby had become grey and 'pinched looking'; there had been six or seven loose, green stools per day for a week. At this stage of the illness the baby was admitted to the Royal Edinburgh Hospital for Sick Children, aged twenty-seven days.

On admission to hospital, the baby was in a weak, emaciated and dehydrated condition and weighed only 3 lb. 12 oz. The dorsal surface of the tongue and the mucosa of the cheeks and palate showed numerous patches of thrush. Some of these lesions were bleeding. The abdomen was not distended, but felt somewhat doughy on palpation. Death occurred seven hours after admission to hospital.

Necropsy. The body was that of a small, poorly nourished female infant. The umbilicus was healed.

ALIMENTARY TRACT. The mouth showed numerous thrush deposits on the cheeks and palate. The tongue did not show any thrush. The pharynx and oesophagus showed inflammatory reddening of the mucous membrane and slightly adherent deposits of thrush, under which superficial ulceration had occurred. These were present throughout the whole length of the oesophagus. The stomach was healthy. The small intestine, for about two feet in the middle, showed considerable swelling and congestion of the wall with diffuse superficial ulceration of the mucous membrane. Much faecal matter adhered to the ulcerated surface and among this were small yellowish masses resembling thrush colonies (fig. 1). These were slightly adherent but could be removed without much difficulty. The appearance was not unlike that of an acute dysentery except for the unusual situation. There was a little congestion of

FIG. 1.—Small intestine showing masses of lightly coloured, adherent thrush colonies.

the mucous membrane of the ileum, close to the ileo-caecal valve, but this part showed no swelling or ulceration. Other parts appeared to be quite healthy. The colon was healthy.

Head, respiratory passages, lungs and heart: nothing of interest was found.

Liver, spleen and kidneys: these organs were dark, firm and atrophic.

BACTERIOLOGY. Films from the oesophagus and the ulcerated part of the small intestine both showed the presence of thrush organisms in large quantities. A culture of the faeces on MacConkey's medium did not show any pathogenic organisms. No culture was made on Sabouraud's medium.

HISTOLOGY. The small intestine showed extensive ulceration of the surface of the mucous membrane. A slough of necrotic material intermixed with bacteria covered the surface. Under this, the sub-mucosa was infiltrated with inflammatory cells and greatly congested. This encroached on the inner part of the muscularis but did not penetrate further through the wall. The bacteria in the slough were mostly Gram positive cocci and rods. Spores and mycelium of the thrush organism were present also but not in large amount, and they had not penetrated the substance of the intestinal wall.

Case 2. Elizabeth Ann B., born March 13, 1941, died May 6, 1941, aged seven and a half weeks.

HISTORY. A much premature infant of thirty-one weeks' gestation. The birth weight was 3 lb. The infant was fed on breast milk and made excellent progress. She weighed 4 lb. 9 oz. at the age of six and a half weeks. Fretfulness then appeared, although the appetite remained good and the stools normal. The abdomen became distended on the second day of the illness and there seemed to be abdominal pain. Measures were taken to relieve the meteorism and sulphathiazole therapy was started. Some improvement occurred after two days and this continued for three days, after which the infant's condition seemed to be fairly satisfactory. This was followed by the reappearance of restlessness and a deterioration in the general condition. The infant collapsed the next morning and died an hour later. No thrush lesions were seen in the mouth either before or during the illness, but small oral lesions or pharyngeal lesions might easily have been missed. There was never any vomiting and the stools were said to have been normal throughout the illness.

Necropsy. The body was that of a small but not very poorly nourished female infant. The umbilicus was healthily healed.

ALIMENTARY TRACT. The mouth and tongue did not show any evidence of thrush, nor did the pharynx

or oesophagus. The stomach was healthy. The small intestine showed a solitary ulcer about six inches above the ileo-caecal valve. It was about half a cm. in diameter, circular and shallow, with a slough adhering to its base. Otherwise, the whole of the small intestine was perfectly normal in appearance. The colon was healthy.

The head and respiratory passages were normal.

The lungs showed congestion and oedema of the bases.

Heart: there was a little dilatation.

Peritoneal sac: nothing abnormal was found.

Liver, spleen and kidneys: these organs showed nothing of interest.

BACTERIOLOGY. A culture on MacConkey's medium of the faeces from the site of the ulcer did not reveal any organisms of the dysentery or enteric groups. No culture was made on Sabouraud's medium.

HISTOLOGY. The ulcer in the ileum was found to be a thrush lesion. The slough on the surface was composed of the mucous coat of the bowel, thickly infiltrated with inflammatory cells and with spores and mycelium of *Monilia albicans*. The ulcer penetrated to the outer muscular layer, the floor showed inflammatory infiltration and invasion by strands of mycelium. The mycelium could be detected passing through the wall almost to the subserous coat and a fragment of it could be seen in a subserous lymph vessel. A feature of the section was the presence of many eosinophil leucocytes in the edges and floor of the ulcer.

Comment

There can be little doubt that, in both cases, thrush was the cause of the intestinal lesions. In the first case, there was an obvious source of infection in the mouth, pharynx and oesophagus. The thrush organisms had not penetrated deeply into the intestinal wall, but they were plentiful in films made from the ulcerated surface. No other pathogenic organisms were discovered, and the site of the ulceration was unusual for any form of dysentery or enteric infection. The intestinal lesions were probably not of long duration, their superficial character being thus accounted for.

In the second case, the histological features of the ulcer near the lower end of the ileum were quite characteristic of thrush, and mycelium was demonstrated penetrating deeply into the floor. This case is of particular interest, as the ileal ulcer was the only evidence of thrush of the alimentary tract. The possibility that it was a secondary lesion cannot be excluded, however, for slight oral infection often remains undetected.

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