1. Monilial Esophagitis

Monilial esophagitis or esophagitis candidosa caused by the yeast-like fungi of the genus Candida, is the most frequent mycotic infection of the esophagus.

1.1. History

Oral thrush was first described in 1764 by Rosen von Rosenstein, who mentions a disease of the mouth, which becomes severe if it spreads into the lungs. Thrush infections were later described by Langenbeck (1839), Berg (1841) and Robin (1953). Already in 1854 Virchow observed fungi which had penetrated into the esophageal wall down to the level of the submucosa; this may be the oldest description of esophagitis candidosa (Gemeinhardt and Deicke, 1967). But only since the introduction of antibiotics and corticosteroids into therapy has the literature paid more attention to this type of esophagitis. In 1956 Andren and Theander described for the first time the radiological appearance of monilial esophagitis.

1.2. Incidence

This infection of the esophagus remains a rare disease though its frequency has increased since the use of antibiotics and steroids. In 1964 Grieve published a review of the literature and collected 13 cases of monilial esophagitis. Since that time, however, many more cases have been described. Over a period of 10 years only 13 adults with esophageal mycoses were treated in Oxford (Holt, 1968). Out of 684 patients admitted into the Cancer Hospital in Jutland 98 (14%) suffered from moniliasis in the oral cavity or elsewhere and 35 patients (5%) had moniliasis of the esophagus (Jensen et al., 1964).

Autopsy studies on the incidence of esophagitis were performed by Gemeinhardt and Deicke (1967). Whenever macroscopic lesions were present the esophagus was studied histologically and cultures were made. In a series of 565 unselected autopsies they found 10 cases of esophageal mycoses; in the 103 children below the age of 1, the incidence was 5.8%, whereas in the 462 older patients it was only 0.87%. Vanbreuseghem (1970) did autopsy studies on the incidence of mycotic infections in 100 cancer patients. In this selected group he found in 67.4% of the cases fungi in the esophagus, mostly Candida albicans. The post mortem studies of Sherlock et al. (1970) revealed an incidence of gastrointestinal moniliasis ranging from 4% in patients with chronic leukemia, to 27% in patients with lymphosarcoma. In acute leukemias, the incidence was 15%. The esophagus was the most common site of gastrointestinal involvement.
1.3. Etiology

The yeast-like organisms of the genus Candida appear as septate branching mycelia 2 to 4 microns in diameter, and as ovoid yeast forms of slightly greater diameter. Although poorly stained with hematoxylin and eosin, the fungi can be visualized by P.A.S. and Gram stains and by phase microscopy (LOURIA et al., 1962). Esophageal mycotic lesions can be caused not only by Candida albicans, but also by Candida kruzei (JENSEN et al., 1964; DELAHUNTY, 1967), by Candida tropicalis (JENSEN et al., 1964; GEMEINHARDT and DEICKE, 1967) and by Torulopsis glabrata (JENSEN et al., 1964).

Several species of Candida are found in rotting vegetables and fruits, and also in dairy products, especially cheese, but Candida albicans is only very exceptionnally found outside of humans and animals (DROUHET, 1957).

Candida is a normal saprophyte of the mucosa and of the skin. According to DROUHET (1957) 6 to 30% of normal human subjects contain Candida in the mouth flora, and 15% have it in their stools. Candida is present in the vagina of non-pregnant women in 5 to 15% of the cases; in the last months of pregnancy this incidence increases to about 36%. Candida can also be found on the bronchial mucosa of normal subjects. The presence of Candida albicans on the skin, however, is abnormal, although other species of Candida can be found there. It should be noted, however, that the Candida found in the throat, the vagina, in the stools and on the bronchial mucosa of normal subjects are few in number and can be detected only by means of cultures.

1.4. Pathogenesis

Although this fungus can behave as a saprophyte and normal subjects can be carriers of Candida without having any complaints, Candida invasions of tissues are not a rare phenomenon (SEELIG, 1966a). Serological studies show that the titer of Candida-inhibiting antibodies and of agglutinating antibodies increases with age.

Clinical studies show that Candida can become pathogenic under a wide variety of circumstances. Acute monilial esophagitis may occur without apparent underlying diseases (BROWN and McKee, 1972). Infants are quite susceptible to oral thrush. The infection can occur at birth during the passage through an infected vagina, or the neonati may acquire it from other persons. GEMEINHARDT and DEICKE (1967) suggest that the use of gastric tubes may play a role in the pathogenesis of moniliasis of the esophagus. Diabetes and pregnancy, malignancy, blood diseases and a poor general condition also favor the development of monilial infections. Antibiotics and/or steroids significantly increase the risk of candidiasis. Thrush of the esophagus has also been described in association with a series of other diseases such as systemic lupus erythematoses (HOGEWIND-DE NIES and HOGEWIND, 1957; GOLDBERG and DODDS, 1968), caustic lesions of the esophagus (GONZALES-CRUSSI and IUNG, 1965), ulcerative colitis (BUCKLE and NICHL, 1964; GUYER et al., 1971), achalasia (GUYER et al., 1971), hypoparathyroidism (KENNY and HOLLIDAY, 1964; KANTROWITZ et al., 1969) and hemoglobin SC disease (SANDERS et al., 1962).

The reason why the equilibrium between host and saprophyte is disturbed in these persons is not always clear. Often there is a combination of several pathogenetic factors such as a poor general condition, treatment with antibiotics and/or steroids. The mechanism by which antibiotics increase the hazards of candidiasis includes: overgrowth of Candida in the absence of competing organisms, local tissue damage and increased invasion by the candida, either as a