Achalasia - An Update

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Achalasia is an esophageal motility disorder of unknown cause, characterized by aperistalsis of the esophageal body and impaired lower esophageal sphincter relaxation. Patients present at all ages, primarily with dysphagia for solids/liquids and bland regurgitation. The diagnosis is suggested by barium esophagram and confirmed by esophageal manometry. Achalasia cannot be cured. Instead, our goal is to relieve symptoms, improve esophageal emptying and prevent the development of megaesophagus. The most successful therapies are pneumatic dilation and surgical myotomy. The overall success rate of graded pneumatic dilation is 78%, with women and older patients responding best. Laparoscopic myotomy, usually combined with a partial fundoplication, has an overall success rate of 87%. Young patients, especially men, are the best candidates for surgical myotomy. Botulinum toxin injection into the lower esophageal sphincter and smooth muscle relaxants are usually reserved for older patients or those with co-morbid illness. The prognosis for achalasia patients to return to near normal swallowing is good, but the disease is rarely "cured" with a single procedure and intermittent touch-up procedures may be required.

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Key Words
Achalasia; Balloon dilation; Esophageal sphincter lower; Muscle, smooth; Botulinum toxin

Introduction

Achalasia is the most recognized motor disorder of the esophagus, and is the only primary motility disorder with an established pathophysiology. The term means “failure to relax,” and describes the primary predominant feature of this disorder, a poorly relaxing lower esophageal sphincter (LES) seen in association with aperistalsis of the esophageal body. The first case of achalasia was reported more than 300 years ago by Thomas Willis; where the patient’s cardiospasm responded to dilation with a whalebone."1

Epidemiology and Pathophysiology

Achalasia occurs with equal frequency in men and women. There is no racial predilection. Case studies show an age distribution between birth and the nineth decade, with the peak incidence between 30 and 60 years of age. In children, it can be part of the Triple A syndrome, characterized by achalasia, alacrima and adrenocorticotropic hormone resistant adrenal insufficiency. Achalasia is an uncommon disease, but occurs frequently enough to be encountered at least yearly by most gastroenterologists. Esophageal specialists, both gastroenterologists and surgeons, may see 10 or more cases a year. The disease prevalence is ap-
proximately 10 cases per 100,000 population. Its incidence has been fairly stable over the last 50 years at approximately 0.5 cases per 100,000 population per year. The overall life expectancy of patients with achalasia does not differ from those of the general population. However, some of these antineuronal antibodies (in particular DQA1 × 0103 and DQB1 × 0603 alleles), point toward an autoimmune origin of the myenteric neurofibrosis. The primary region of damage is the esophageal myenteric (Auerbach’s) plexus, and includes prominent but patchy inflammatory response, consisting of predominantly CD3 and CD8 positive cytotoxic T lymphocytes, variable numbers of eosinophils and mast cells, loss of ganglion cells and some degree of myenteric neurofibrosis. Early disease has more of an inflammatory component, with some of the ganglion cells appearing to be intact, while end stage disease is associated with complete loss of ganglion cells and replacement with myenteric fibrosis. Even during the early inflammatory stages of achalasia, there is a selective loss of postganglionic inhibitory neurons containing nitric oxide (NO) and vasoactive intestinal polypeptide. Since postganglionic excitatory neurons are spared, cholinergic stimulation continues unopposed, leading sometimes to high resting LES pressure. The loss of inhibitory input results in abnormal and usually incomplete LES relaxation. This occurs for all stimuli, including electrical field stimulation of muscle strips from achalasia patients, intravenous cholecystokinin, esophageal distension, and gastric distension fail to induce transient LES relaxation in achalasia patients. Aperistalsis is caused by the loss of the latency gradient that permits sequential contractions along the esophageal body, a process mediated by NO.

Although achalasia is the best characterized of the esophageal motility disorders, its pathogenesis is still not fully elucidated. Available data suggests that hereditary, degenerative, autoimmune and infectious factors are possible causes - the latter 2 being the most commonly accepted. The presence of cytotoxic T lymphocytes, IgM antibodies and evidence of complement activation and antibodies against myenteric neurons, especially in patients with specific HLA genotype (DQA1 × 0103 and DQB1 × 0603 alleles), point toward an autoimmune origin of the myenteric gangliositis. However, some of these antineuronal antibodies may be seen in healthy patients and patients with GERD, suggesting they may represent an epiphenomenon, and not a causative factor. Although these findings are all very interesting, it still remains obscure why only neurons in the esophagus and LES are destroyed. Furthermore, the exact stimulus initiating this immune response or the antigen targeted remains unidentified. The fact that achalasia is confined to the esophagus and LES has led to hypotheses that neurotropic viruses, especially viruses with predilection for squamous epithelium, may be involved. However, studies focusing on the presence of viral antibodies in the serum or viral DNA in esophageal tissue show conflicting results. On the other hand, a recent study suggests a causal role for a subpopulation of cytotoxic lymphocytes activated by the herpes simplex virus antigens or antigens on neurons similar to herpes simplex virus.

Clinical Presentation

The diagnosis of achalasia should be suspected in any patients complaining of dysphagia for solids and liquids with regurgitation of bland food and saliva. The onset of the dysphagia is usually gradual, being described initially as an infrequent “fullness in the chest” or “sticking sensation,” but usually occurs daily or with every meal by the time the patient sees a physician. Initially, the dysphagia may be primarily for solids; however, by the time of clinical presentation, nearly all complain of dysphagia for solids and liquids while eating and drinking, especially cold beverages. Various maneuvers, including “power swallows” and carbonated beverages, both of which increase intraesophageal pressure, may be used to improve esophageal emptying. Regurgitation becomes a problem with progression of the disease, especially when the esophagus becomes dilated. Regurgitation of bland, undigested retained foods or accumulated saliva, sometimes misdiagnosed as postnasal phlegm or bronchitis, occur postprandially and at night, often waking the patient from sleep because of coughing and choking. Rarely, aspiration pneumonia is a problem. Chest pain occurs in some patients, primarily at night, and is especially seen in patients with milder disease when the esophagus is minimally dilated. The mechanism of chest pain is unknown, but it is not simply repetitive episodes of simultaneous contractions, causing the esophageal lumen to be occluded. Whereas pneumatic dilation or surgery usually relieves dysphagia and regurgitation, the chest pain in achalasia patients responds much less predictably. Fortunately, the chest pain seems to get better over time, possibly as the esophagus dilates. Heartburn is a frequent complaint in achalasia, despite the fact that achalasia is not associated with increased episodes of acid reflux by pH monitoring. The cause of this symptom is speculative, but probably related to retention of acid beverages such as carbonated or fruit drinks and, in some cases, the production of lactic acid from retained food in a markedly dilated esophagus. Most achalasia