

◎症 例

Yawning associated with anterior chest pain in a patient with asthma.

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Abstract : We present a case of a patient with asthma who developed yawning associated with anterior chest pain. She was admitted due to severe anterior chest pain, wheezing and dyspnea. Although the frequency of the symptoms decreased, she began to experience frequent episodes of yawning at night accompanied by tears. While she experienced yawning, although PEF (peak expiratory flow) decreased, no asthmatic symptoms, such as wheezing or dyspnea were observed. The yawning was improved markedly by bronchodilators and a leukotriene receptor antagonist, and moderately improved by corticosteroids. We speculated that yawning is a clinical manifestation of asthma that responds to treatment.

Key Words : yawning, chest pain, nocturnal dyspnea, asthma

Case Report

A 64-year-old woman was admitted to our hospital in February 1993, due to severe anterior chest pain, wheezing and dyspnea. She experienced sudden chest pain that gradually became more severe, accompanied by vomiting, wheezing, coughing and dyspnea. She had been asymptomatic until two years prior to admission, when wheezing and dyspnea began. Her serum IgE level was 2139 IU/ml, and both a skin test and a radioallergosorbent test (RAST) were positive against house dust mites. According to

episodic symptoms of wheezing and dyspnea, the patient showed a reversible airway response with an increase in forced expiratory volume in one second (FEV₁) exceeding 20% in response to β 2-agonist and showed increased bronchial hyperresponsiveness to methacholine (PC20; the concentration of methacholine causing a 20% decline of FEV₁, 390 μ g/ml). She was diagnosed as having bronchial asthma. Other potential causes of the chest pain were ruled out according to the findings of upper gastrointestinal endoscopy, chest radiography, chest computed tomography, electrocardiogram and ultrasonic cardiography. Coronary angiography also failed to

reveal either stenosis or atherosclerotic changes. Gastroesophageal reflux disease was also concluded to be an unlikely cause of the chest pain given that a proton pump inhibitor was not effective in reducing the chest pain. After being admitted, she was treated with corticosteroids, nebulized β 2-agonist and intravenous aminophylline for her wheezing and dyspnea, and a nonsteroidal anti-inflammatory suppository for the chest pain.

Following discharge, although the frequency of chest pain decreased, she began to experience frequent episodes of yawning at night accompanied by tears. Her yawning occurred once every thirty to forty minutes, especially on cold nights from November to March with no sensation of dyspnea or chest pain. Her pulmonary function was normal (114.5% of predicted forced vital capacity (FVC), 113.8% of predicted FEV₁) when she was asymptomatic. While she experienced yawning, although PEF (peak expiratory flow) decreased somewhat (50-80% of her maximum level), no asthmatic symptoms, such as wheezing or dyspnea were observed. The yawning was improved markedly by bronchodilators and a leukotriene receptor antagonist, and moderately improved by corticosteroids. In summary, three different symptoms, namely wheezing and dyspnea, anterior chest pain and yawning, were observed in the present case. The characteristics of each symptom are summarized in Table 1.

Yawning is a complex behavioral event that depends largely on the autonomic nervous system, which has been reported to be associated with a sympathetic suppression that favours a parasympathetic dominance (1). Yawning is under the control of several neurotransmitters and neuropeptides at the central level. Substances that induce yawning include dopamine, excitatory amino acids, acetylcholine, serotonin,

Table 1. Symptom Characteristics

	Wheezing and dyspnea	Anterior chest pain	Yawning
Age at onset	61	62	63
Time when they occur	At any time	More frequently at night than during daytime	Only at night
Duration	Indefinite	Indefinite	For 30 to 40 minutes
Frequency	Often	More than 2-3 times per day	Only one time at night
Fall in PEF	Markedly	Slightly	Moderately
Effects of treatments			
β 2-agonist	(++)	(+)	(++)
aminophylline	(++)	(+)	(++)
corticosteroid	(++)	(+)	(+)
LTRA	(++)	(+)	(++)
DSCG	(+)	(±)	(±)
NSAIDs	(-)	(++)	(-)

(++): The symptoms completely disappeared or were markedly improved
 (+): moderately improved
 (±): slightly improved
 (-): no change
 LTRA: leukotriene receptor antagonist
 DSCG: disodium cromoglycate
 NSAIDs: nonsteroidal anti-inflammatory drugs

nitric oxide, adrenocorticotrophic hormone-related peptides and oxytocin. Opioid peptides are known to inhibit yawning (2). Despite recent progress, little is known of the neurochemical mechanisms underlying yawning at the central level. The administration of dexamethasone altered yawning behavior induced by cholinergic but not dopaminergic agonists (3). Further research is needed to identify these factors.

Asthma shows a wide variety of clinical manifestations, one of which is chest pain. Three reported cases of chest pain variant asthma have suggested its importance as a clinical entity for patients who initially present with chest pain. Two patients required a short course oral corticosteroid treatment to achieve symptom ablation (4). Asthma symptoms (cough, dyspnea, wheeze, chest tightness, sputum production and nocturnal awakening) correlated poorly with the level of airway obstruction (5). However, the present case developed nocturnal yawning associated with noncardiac and nonesophageal chest pain and airway obstruction. The reason for the occurrence of yawning and chest pain remains obscure, but the autonomic nerve

system may have played an important role in their occurrence. Our case suggests that yawning is a clinical manifestation of asthma that responds to treatment.

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‘あくび’ と胸痛を訴えた気管支喘息の1症例

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64歳の女性。1993年2月に高度の前胸部痛, 喘鳴, 呼吸困難を主訴として入院した。入院後, 前

胸部痛, 喘鳴, 呼吸困難は徐々に軽快傾向であったが, 夜間流涙を伴う‘あくび’が頻回に出現するようになった。‘あくび’が出現する時には, 喘息症状(喘鳴, 呼吸困難)は伴わないが, ピークフローに低下を認めた。‘あくび’に対する治療としては, 気管支拡張剤, ロイコトリエン受容体拮抗剤は著効, 副腎皮質ステロイド剤は中等度有効であった。‘あくび’は治療に反応する喘息の一症状であることが示唆された。