Stoneman Syndrome

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Key points

- Stoneman syndrome is a very rare genetic disorder known as progressive bone fibro dysplasia.
- It is characterized by further skeletal anomalies of the spine, neck, and ribs as well as aberrant bone formation in the afflicted areas of the neck, shoulder, elbows, knee joint, wrist, ankle, and mouth.
- It is caused by a genetic mutation in the ACVR1 gene located on the long arm of chromosome 2 as 2q24.1.

Stoneman syndrome is a very rare genetic disorder known as progressive bone fibro dysplasia (FOP) or severe progressive bone malformation. The ultra-rare autosomal dominant condition and disabling syndrome is defined by congenital deformity of the big toes and postnatal progressive heterotopic ossification of the connective tissue, especially those connected to the striated muscles, which can lead to lifelong disability.1

Ossification of the underlying soft tissues and fibroblastic proliferation in the neck or paravertebral region promote the development of rapidly growing masses. Although the soft tissue masses can grow on their own, trauma can speed their growth and cause calcification. Because FOP is often misdiagnosed, needless biopsies and operations are performed, which worsens the condition. Thus, it is crucial for early diagnosis that all doctors, surgeons, and pediatricians are aware of the clinical symptoms of FOP.1

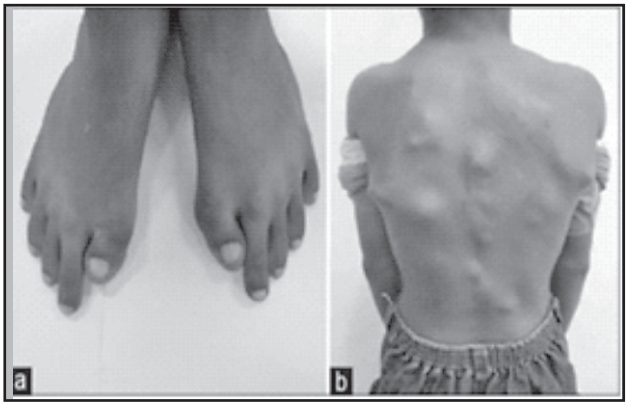

Fig 1

a. Big toe is rotating inward or towards the other toes and the little toes adhering to one another

b. Abnormalities of the upper spine, a short, broad neck

Symptoms

Progressive bone fibro dysplasia is a genetic connective tissue disorder that frequently affects ligaments, tendons, and skeletal muscles. It is linked to aberrant bone growth in many parts of the body. Stoneman syndrome is also characterized by further skeletal anomalies of the spine, neck, and ribs as well as aberrant bone formation in the afflicted areas of the neck, shoulder, elbows, knee joint, wrist, ankle, and mouth. Other abnormalities of the toes include the big toe rotating inward or towards the other toes, the little toes adhering to one another, and the fifth toe's persistent curvature. The proximal internal tibia, abnormalities of the upper spine, a short, broad neck, and short, aberrant thigh bones that stretch from the knee to the hip are some other congenital symptoms of stone man syndrome.2

Figure 4: heraldsopenaccess.us/webmail(abnormal curvature of the spine).

Cause

Stone man syndrome (FOP) is caused by a genetic mutation in the ACVR1 gene located on the long arm of chromosome 2 as 2q24.1. It participates in the stem cell fate-determining BMP receptor signaling pathway. Human BMPR receptors comprise BMPR1A, BMPR1B, BMPR2, and BMP4; only BMPR1A and BMP4 receptors play

adenocarcinoma is more common in males and the elderly.9 Intestinal adenocarcinoma dominates high-risk areas and is considered responsible for much of the international variation in incidence

Prevention and treatment

During the past century, Western developed countries experienced a major reduction in stomach cancer incidence and mortality, without the introduction of specific primary and secondary prevention measures. Generally, favorable trends in the frequency of stomach cancer are thought to be an important consequence of changes such as the reduction in the use of salt and an increase in the consumption of fruit and fresh vegetables due to improvements in food storage (refrigerators, freezers). This phenomenon has been dubbed the “unplanned triumph” of prevention.

Primary and secondary prevention strategies are the focus of stomach cancer prevention.

Primary prevention measures involve improvements in environment and lifestyle habits such as tobacco control/smoking cessation, reducing salt intake, increasing fruit and vegetable intake, developing other healthy behaviors (such as Mediterranean diet, higher intake of fiber, physical activity), H. pylori eradication, other medications (intake of non-steroidal anti-inflammatory drugs, statins), refraining from high alcoholic beverages, sanitation and hygiene improvements. The WHO has set a global goal of reducing the intake of salt to less than 5 g (2000 mg of sodium) per person per day by the year 2025. A meta-analysis of randomized trials (all trials were performed in areas with a high incidence of stomach cancer, mostly in Asia), in a total of 6695 participants followed from 4 to 10 years showed that the risk of stomach cancer can be reduced by 35% with the treatment of H. pylori. In addition to endoscopic and histological surveillance, the American and European guidelines recommend eradication of H. pylori in all persons who have atrophy and/or intestinal metaplasia and all persons who are first-degree relatives of stomach cancer patients. According to the Asian Pacific Gastric Cancer Consensus, population-based screening and treatment of H. pylori infection is recommended in regions which have an annual stomach cancer incidence of more than 20/100000. Eradication of H. pylori can be achieved with antibiotic therapy; but the treatment of asymptomatic carriers is not practical as many countries have a very high infection burden (e.g., over 75% of adult persons living in sub-Saharan Africa have H. pylori infection) and reinfection is relatively easy.

Japan has had a national endoscopic surveillance program since the early 1970s because of the high stomach cancer risk. It is recommended that all people older than 40 years undergo screening with a double-contrast barium X-ray radiography and endoscopy every year. A study in China demonstrated that a preventive intervention which included eradication of H. pylori, nutritional supplements, and screening (with double-contrast radiography and endoscopy) resulted in a 49% reduction in relative risk for overall mortality in a high-risk group of individuals.

Upper gastrointestinal endoscopy is the gold standard for stomach cancer diagnosis and due to its high detection rate, it is used for stomach cancer screening in high-risk areas (such as Japan, Korea, Venezuela and other areas), but the available evidence shows that endoscopic surveillance of premalignant gastric lesions showed conflicting results.

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