"What's wrong with my finger?"

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A 37-year-old man presents with a deformity of his left ring finger. Two weeks ago, he injured the digit playing basketball. An X-ray of his finger reveals no fracture or dislocation. The phalanges align normally.

What's your diagnosis?

This patient has boutonniere deformity.

What is the pathophysiology of this condition?

A finger with a boutonnniere deformity demonstrates flexion of the finger's proximal interphalangeal joint and hyperextension of the finger's distal interphalangeal joint. This deformity can result from two events (Table 1).

Often, the deformity will not be present at the time of the initial injury, developing instead over the succeeding couple of weeks. Sometimes a small avulsion fracture of the dorsal cortex of the middle phalanx is seen on X-ray. However, a small avulsion fracture is usually of little significance, as it does not normally affect the treatment of boutonniere.

Table 1

Events that cause boutonniere deformity

1. The central slip of the finger's extensor mechanism is pulled off its insertion at the base of the middle phalanx.

   The resultant unopposed pull of the digit's flexor digitorum superficialis tendon causes flexion of the finger's proximal interphalangeal joint.

2. The digit's extensor mechanism is stretched.

   This causes the lateral bands to migrate volarly until they lie volar to the axis of rotation of the finger's proximal interphalangeal joint. In their abnormal position, the lateral bands hyperextend the finger's distal interphalangeal joint.

The goal in treating boutonniere deformity is to restore the relationship between the central and lateral bands of the injured extensor mechanism.

How would you treat it?

The goal in treating boutonniere deformity is to restore the normal relationship between the central and lateral bands of the injured extensor mechanism.

In acute cases, passive extension of the injured finger's proximal interphalangeal joint is almost always possible. In these cases, splint the digit's proximal interphalangeal joint in extension and start the patient on a course of physical therapy to actively and passively flex the finger's distal interphalangeal joint. The

Table 2

Summary of treatment options for boutonniere deformity

Type of injury	First-line treatment
Acute	• Splint the digit's proximal interphalangeal joint for 4-6 weeks in extension* • Start the patient on physical therapy
Chronic	• Identical to acute boutonniere
Finger fixed in flexion	• Progressive splinting of the injured digit's proximal interphalangeal joint with concomitant digital physical therapy
Persistent chronic (continues even after spliniting)	• Surgery
Evidence of proximal interphalangeal joint destruction	• Surgery

*If deformity recurs after this regimen, simply repeat.

motion of the distal interphalangeal joint will move the digit's lateral bands distally and dorsally, forcing them to resume their anatomic position dorsal to the finger's proximal interphalangeal joint. The finger should remain splinted for at least four weeks and, usually, I splint patients continuously for six weeks. A further two weeks of nocturnal and protective splinting is also advised. If the deformity recurs, the entire whole course of therapy should be repeated.

In chronic cases, passive extension of the digit's proximal interphalangeal joint is still possible, with the treatment being identical to that administered to the acute boutonniere. More commonly, however, the proximal interphalangeal joint of the finger with a chronic boutonniere deformity is fixed in flexion. The first line of treatment in this circumstance is typically a course of progressive splinting of the injured digit's proximal interphalangeal joint, with concomitant digital physical therapy, until full extension of the finger's proximal interphalangeal joint is reached. The finger's proximal interphalangeal joint is then splinted in extension for several more weeks, and active flexion exercises of the finger's distal interphalangeal joint are continued. Often, once they have come out of their splints, patients will have a temporary loss of flexion of their proximal interphalangeal joint. Fortunately, the stiffness usually resolves once motion of the digit is restored.

Surgery is indicated in patients with a chronic boutonniere deformity that persists despite a course of progressive splinting.

Finally, surgery is indicated in patients with a chronic boutonniere deformity that persists despite a course of progressive splinting.

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Surgery is also indicated in boutonniere patients with X-ray evidence of proximal interphalangeal joint destruction.

For a summary of treatment options, see Table 2. Dx

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A look at common medical issues on the Web

Eczema

Surf your way to...

1. The Eczema Society—*www.eczema.org*

The National Eczema Society (NES) is the most established organization worldwide devoted to those who suffer from eczema, dermatitis, and sensitive skin. The society aims to provide helpful, comprehensive information, as well as advice for patients. The NES has a growing network of support, funds for research, and a campaigning voice in favour of people suffering from eczema.
The links on this page provide information on eczema, such as its description, its causes, and its association with school and teenagers.

2. American Academy of Dermatology—*www.aad.org/pamphlets/eczema.html*

The American Academy of Dermatology's (AAD) goal is to advance the science of medicine related to skin. Through education, research, and clinical practice, the AAD wishes to promote the highest standard in dermatology-related disciplines.
The site provides a description of eczema and answers many frequently asked questions. It also provides a link to support groups for patients.

3. Eczema Canada—*www.eczemacanada.ca*

Through this Web site, the Eczema Awareness, Support, and Education (EASE) program aims to provide quality educational resources to help eczema sufferers better manage their condition.
This bilingual site gives information on adult eczema, childhood eczema, treatment, and other important information.