

Stanford Medicine 25

*Promoting the Culture of Bedside Medicine*

# Examination of the Hand (The Hand in Diagnosis)

The examination of the hand and nails can lead to a number of diagnoses. Some of these include liver disease (Terry's nails), kidney disease (Lindsay's nails), lung disease (nail clubbing), endocarditis and many others.

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## Introduction to the Hand Exam

*Consider beginning all physical examinations by reaching for the patient's right hand with both of yours. Inspect it and then move to the radial pulse. This is a nice way to ease into the examination; you are beginning with the equivalent of a handshake.*



Handshake:

Moist and warm hands (think nervousness, thyrotoxicosis, look for tremor, eye signs).

Inability to let go your of hand (think myotonia, not to be confused with the grasp reflex in frontal lobe disease. Look for other signs of myotonic dystrophy: hatchet face, cataracts, baldness, myopathic facies).

## Nails

### Terry's Nails

### Lindsay's Nails (*Half-and-half Nails*)

### Beau's Lines

### Muehrcke's Lines (*Leukonychia striata*)

### Mees' Lines

### Acral Lentiginous Melanoma

### Splinter Hemorrhages

## Nail Pitting

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## Quitter's Nail

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## Paronychia

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## Clubbing

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## Mechanical Dysfunction of the Hand

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## "Fingerization" of the Thumb

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## Tripe Hand

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## Down's Syndrome (Simian Crease)

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## Janeway Lesions vs. Osler Nodes

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# Nails

## Terry's Nails

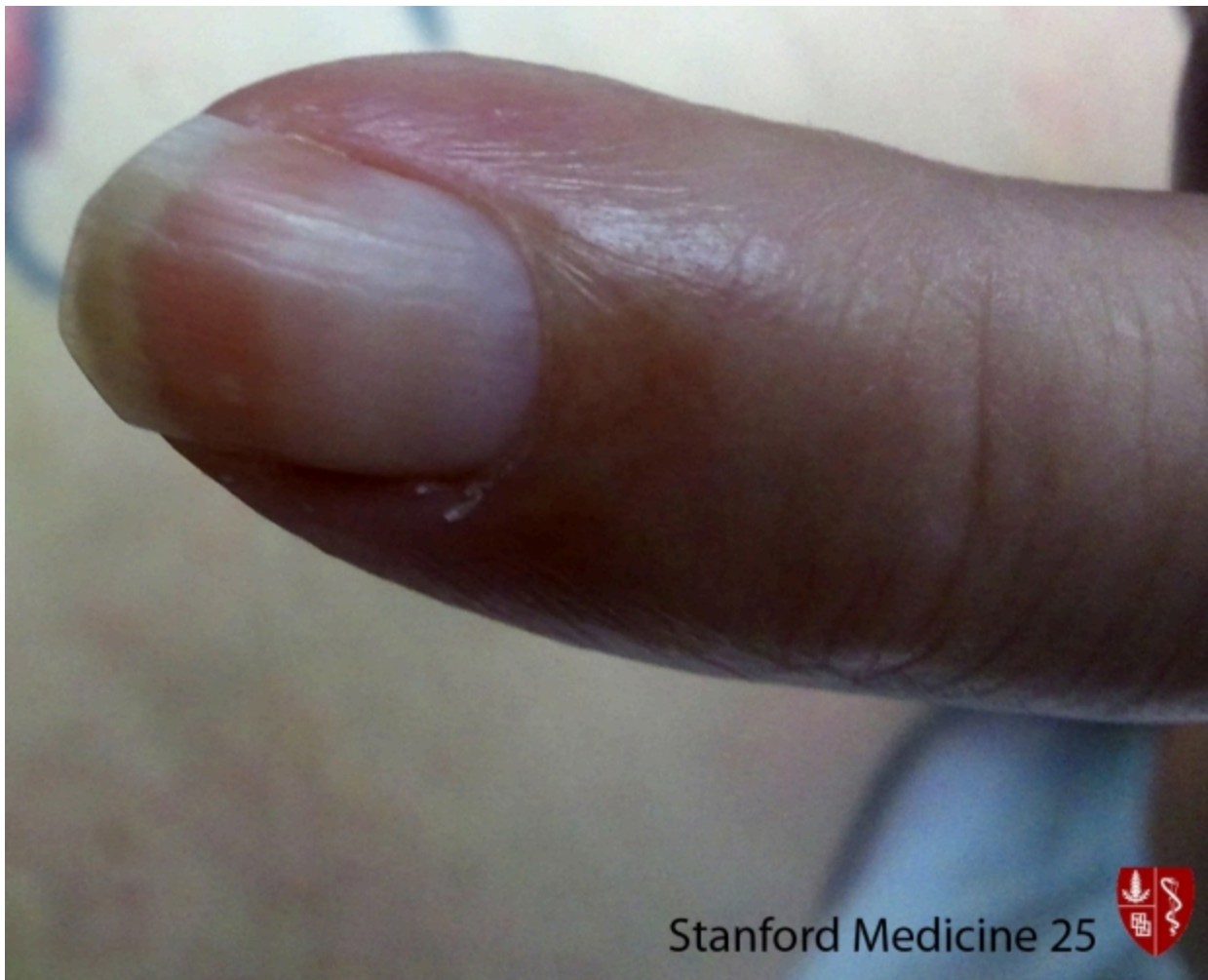
Proximal paleness extending halfway up the nail, often eliminating the lunula. Darker distal band. Seen in states of stress (e.g. advanced age, liver disease/cirrhosis, CHF, DM2). ([Image Credit](#))



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### Lindsay's Nails (*Half-and-half Nails*)

Distal brown transverse band seen in kidney disease. Caused by increased pigment deposition.



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## Beau's Lines

Transverse depressed ridges seen in severe infection, MI, hypotension/shock, hypocalcemia, post-surgical, malnutrition and with certain chemotherapy.



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## Muehrcke's Lines (Leukonychia striata)

Narrow white transverse lines (Not depressed, compared to Beau's lines). Usually 2 or more lines on one nail. Seen in states of decreased protein synthesis or increase protein loss such as with hypoalbuminemia (usually less than  $< 2.2$  g/dL), certain chemotherapy and nephrotic syndrome. ([Image Credit](#))

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## Mees' Lines

Transverse white lines (usually one per nail, no depressions) that often can disappear if pressure is placed over the line. It is strongly associated with arsenic poisoning, thallium poisoning and to a lesser extent other heavy metal poisoning. ([Image Credit](#))

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## Acral Lentiginous Melanoma (involving nail)

While acral lentiginous melanoma is often seen anywhere on the palms, soles, and even in the mouth, when it occurs within the nail, a clue that this is melanoma is involvement of the periungual regions as seen in this picture.



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## Splinter Hemorrhages

Nonspecific finding associated with trauma most commonly but also seen in subacute bacterial endocarditis and scleroderma. ([Image Credit](#))





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## Nail Pitting

Non-specific sign for psoriasis (additional signs include onycholysis, thickening, and 'oilspot' lesions which are yellow patches on the nail). ([Image Credit](#))



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## Quitter's Nail

Nicotine stained distally, but not proximally with clear line of demarcation. See also our article in Chest and [NEJM clinical image](#). May also appear when pt switches to "lower tar" tobacco.



Finger nails grow at a rate of about 0.8-1.0 mm per week. Using this, you can approximate when the clinical scenario causing the nail finding occurred. For example, approximating when someone has stopped smoking who has quitter's nails.

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## Paronychia

Inflammation of the nail folds - red, swollen, often tender. Frequent immersion in water a risk factor for chronic paronychia. ([Image Credit](#))

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## Clubbing

Angle between nail plate and proximal nail fold greater than 180 degrees.



Important causes of clubbing in the adult:

1. Lungs

- a. Lung Cancer (clubbing is in general an ominous sign for this, and remember "beware of the yellow clubbed digit". (Yellow from nicotine, and clubbed from cancer).
- b. Pus in the lung (bronchiectasis as in CF, but also lung abscess and empyema)
- c. Pulmonary Fibrosis
- d. **COPD IS NOT A CAUSE OF CLUBBING** (if you see clubbing in a COPD patient, think lung cancer)

2. Heart

- a. R to L shunts
- b. Endocarditis
- c. Pericarditis

There are other causes of clubbing, outside the heart and lungs, but these are the important ones.

If a patient has painful wrists, painful ankles and comes to see you and you miss that they also have clubbing, you will go down the wrong path looking for RA etc, when what they have is **Hypertrophic Pulmonary Osteoarthropathy**. The causes of HPOA are the same as those of clubbing.

*Pseudoclubbing*: distinguished from clubbing by the preservation of the nail-fold angle and bony erosion of the terminal phalanges on radiography. Pseudoclubbing is also more likely to be asymmetric.

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## Mechanical Dysfunction of the Hand

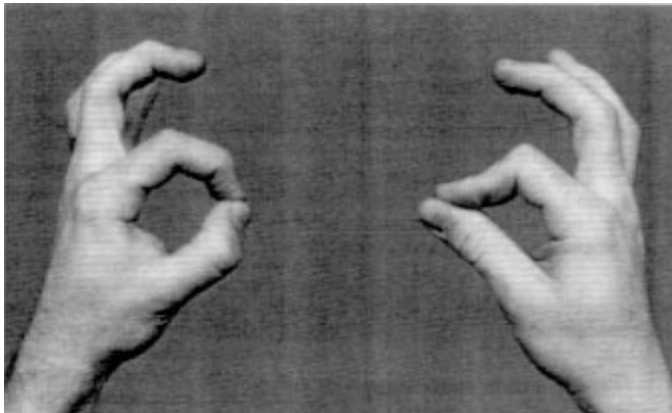
### Pope's Hand (Hand of Benediction)

The pope's hand is seen with median nerve dysfunction when asking the patient to make a fist due to inability to flex 1st & 2nd fingers at PIP. The median nerve controls the 1st & 2nd lumbricals, three thenar muscles (abductor pollicis brevis, flexor pollicis brevis, and via a distal branch the opponens pollicis). Additionally there may be thenar atrophy. ([Image Credit](#))





Ask patient to use both hands to make an "Okay" sign by forming a circle with thumb and index finger. Median nerve palsy may make one hand produce a pinched circle (right hand in image). (Image Credit)



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## Ape Hand

Distal median nerve dysfunction: Inability to oppose thumb from distal median nerve dysfunction.

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## Claw Hand

The image below is a simulated claw hand. Note that due to ulnar damage, the 3rd & 4th lumbricals are unable to extend the PIP & DIP joints at the 4th & 5th digits.

The ulnar nerve controls the 3rd & 4th lumbricals, the three hypothenar muscles, the dorsal & palmar interossei, the palmaris brevis and the adductor pollicis. Ulnar nerve damage may also cause hypothenar atrophy.



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## Froment's Sign

Ask patient to hold a piece of paper between thumb and index finger. If the examiner can pull paper away (a positive Froment's sign), it suggests that an ulnar palsy has weakened the thumb's strength of opposition.

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## Radial nerve damage

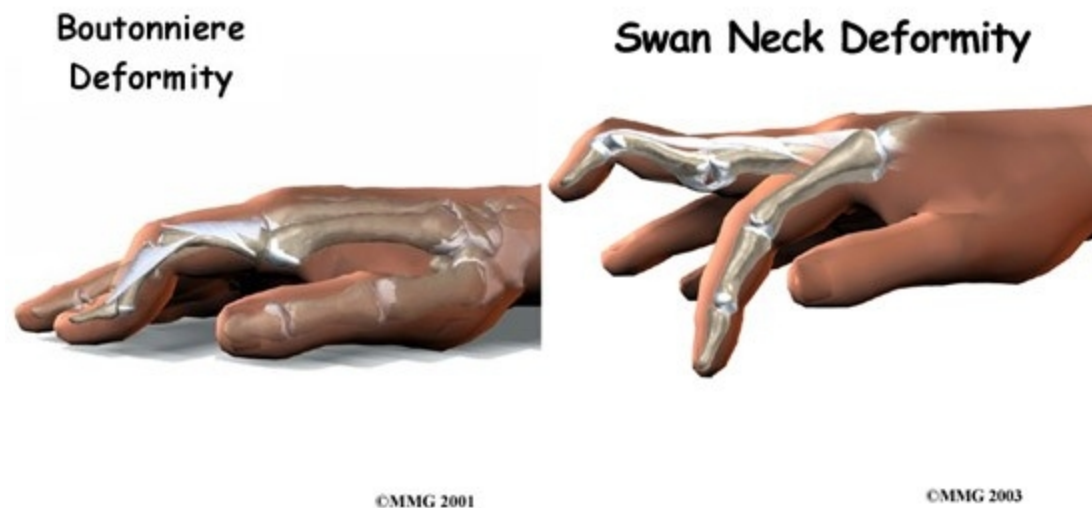
No intrinsic muscles but important wrist extensors. Radial nerve damage commonly causes wrist drop.

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## Boutonniere Deformity & Swan Neck Deformity

Flexion of PIP and extension of DIP, seen in chronic rheumatoid arthritis.

Swan neck deformity: extension of the PIP, flexion of DIP, seen in chronic rheumatoid arthritis. (Image Credit)



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## Misc. Hand Findings

### Herpetic Whitlow

Occupational hazard for respiratory therapists and house staff who work around oral secretions. ([Image Credit](#))



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## Bouchard's and Heberden's Nodes

Bouchard nodes (found at the PIP) and Heberden's nodes (found at DIP) are bony outgrowths seen in osteoarthritis (DJD) of the hand. These outgrowths are formed by calcific spurs within the respective articular joint.

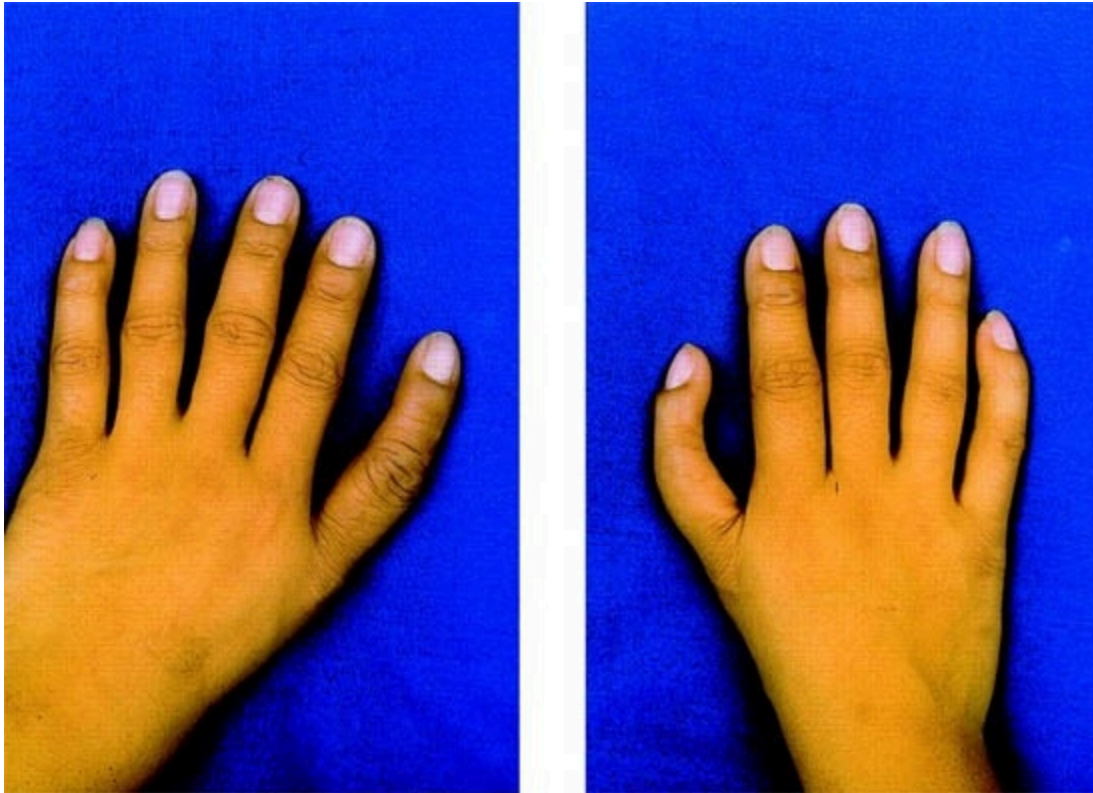


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## "Fingerization" of the Thumb--Holt-Ohran Syndrome

Holt-Ohran syndrome - absent radius, single atrium, autosomal dominant. (Image Credit)



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## Hypermobility of hand joints

Ehlers Danlos, many types. Syndrome may include skin hyperextensible, fragile, "cigarette paper burn" scars, spontaneous rupture of eye, arteries, intestine, hip dislocations, Marfanoid habitus, kyphoscoliosis, prominent hernia, mitral valve prolapse, coronary dissection.

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## Short extremities and polydactyly

Ellis Van Creveld Syndrom - dwarfism, short extremities and polydactyly, dysplastic teeth and nails, multiple frenula binding the upper lip to the alveolar ridge, ASD or a single atrium.

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## Arachnodactyly (Achromachia)

Long "spider-like" digits, thumb can often extend beyond palm. Characteristic of Marfan's Syndrome - tall stature, thoracic deformity, joint laxity, ectopia lentis and myopia, aortic dilation and dissection, mitral valve prolapse, autosomal dominant, spontaneous pneumothorax, chordae tendineae rupture.

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## Tripe Hand

Thickened, velvety texture of hand. Often sign of visceral malignancy. See also NEMJ "[Velvet Palms](#)" in Images in Clinical Medicine. ([Image Credit](#))



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## Down's syndrome

Single palmar crease (Simian crease). The fifth digit is abnormally short (only reaches the second crease of the 4th digit). Remember to look for endocardial cushion defects (ASD, VSD and mitral/tricuspid abnormalities).



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## Janeway Lesions vs. Osler Nodes

Both found in bacterial endocarditis.

### Osler Nodes:

Painful, palpable red lesions usually on **fingers/toes**. They are caused by **immune complexes**. ([Image Credit](#))

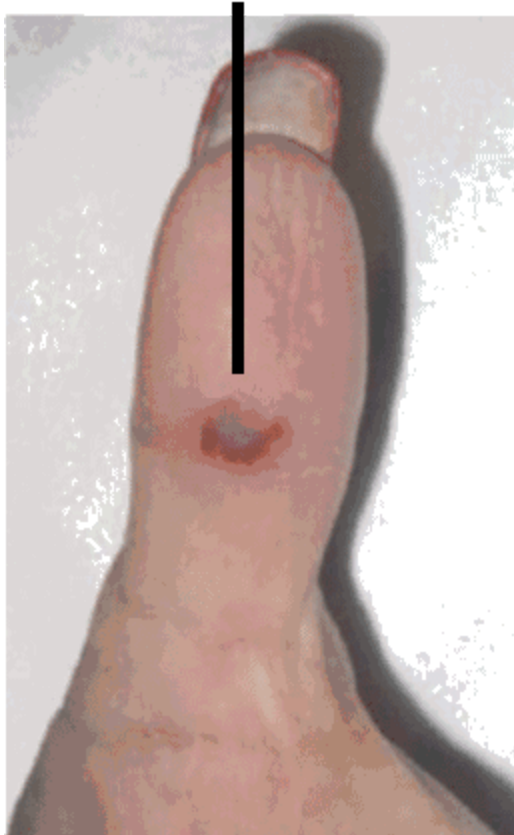
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## Janeway Lesions

Non-painful, macular lesions, usually on **palms/soles**. They are caused by **septic emboli**, more common in Staph aureus endocarditis. ([Image Credit](#))

(See Splinter Hemorrhages and Roth Spots)

### Osler Node



### Janeway Lesion



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## Key Learning Points

Learn **nail** pathology

Learn **mechanical dysfunction** of the hand

Review misc. hand findings

## Related to The Hand in Diagnosis

Fundoscopic Exam

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The Tongue in Diagnosis

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Thyroid Exam

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Ankle and Foot Exam

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Carpal Tunnel Exam

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Dermatology Exam: Learning the Language

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Dermatology Exam: Nevi (Mole) Exam

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