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Nail Changes

Nails help protect the ends of our fingers and toes, and allow fingers to perform activities such as scratching or picking up things. Nails are normally present on each finger and toe. They are made up of the nail plate (the hardest part of the nail and the part that can be seen) and tissue that lies underneath the nail plate.

Nails receive blood and nutrition from the body. They are attached to the body by the nail bed which is kind of like a root and receives nutrients to keep the nails healthy and to allow new nail cells to form and grow. As they grow, the newer cells push out the older cells. The older cells are pushed forward and get flatter and harder which forms the nail plate. The nail plate does not have living cells which is why nails can be cut without pain.

Nail changes are different problems that can happen to fingernails, toenails, or both. Certain types of cancer and cancer treatments can cause changes to the nails. The changes can happen in the nail bed or in the nail plate itself. Nail changes can be temporary or may last.

Types of nail changes

Depending on what is causing changes in your nails, you might notice changes in how they look, feel, and work. You might also notice changes in the tissue around or under your nails. Some common nail changes include:

- Changes in thickness and strength of nails causing nails to become weaker
- Painful, delicate nailbeds, fingers, or toes
- Dry or cracked skin in the cuticles around the nailbed
- Changes in the color of the nails or nailbeds (either discolored areas or over-pigmented, darker than usual areas)

- Ridges, markings, pits, spots, splitting and other unusual or irregular marks in the nails
- Lifting of the nail plate off of the nailbed, or the nail plate falling off
- Slower nail growth than usual , or temporary lack of growth .

Nail changes in people with cancer

Some treatments for cancer can cause damage or changes to nails. Usually the treatments that cause nail changes are medications, but radiation can also cause nail changes. Different treatments can affect normal cells, like nail cells, in different ways. And their side effects can also affect nails differently. One, two, a few, or all of your nails could be affected by changes. Some changes occur soon after you begin treatment, but others may happen weeks or months after treatment begins. Some might be temporary and others might be long-lasting or permanent.

Remember that while some cancers and cancer treatment can cause changes in your nails, non-cancer conditions and medications can also cause them. It's important to talk to your doctor about all medical problems you might have and about the medications, vitamins, minerals, and supplements you are taking so your risk can be discussed and you know what to expect.

Nail changes to look for

- **Dark areas near the cuticle of the nail (subungual lesions):** These look like bruises under the nails, and are usually along the bottom edge of the nail, near the cuticle. These kinds of color changes can be seen in nail cancer (called melanoma) and can also be a side effect of some types of drugs used to treat cancer.
- **Fissures:** Small thin cracks or deep cuts or tears in the finger tips, nail plate or bed, which can be very painful.
- **Hemorrhages (splinter hemorrhage):** Tiny red lines in the nails that are tiny areas of bleeding under the nail plate.
- **Hyperpigmentation:** Nail plates are usually translucent (clear). Some medications or radiation can cause a darkening of the skin, or nail itself. Usually this darkening is temporary, but sometimes it is permanent and can occur in some parts of the nail, or all over the nail.
- **Inflammation (paronychia):** Redness, and sometimes swelling of the nailbed and surrounding finger or toe, sometimes with an infection that is bacterial or fungal, which can be very painful and can limit your ability to do normal daily activities.

- **Lifting of the nail plate (onycholysis):** This is usually a temporary condition but can be upsetting. If the nail lifts away from the nailbed, it makes the nail likely to fall off, and it becomes a place where an infection could easily happen.
- **Nail loss:** Complete loss of the nail plate. Some medications cause the nail plate to loosen entirely and be lost. This is temporary but can be painful and can increase the risk of infection.
- **Ridges or lines in the nail plate:** Some medications cause different looking ridges or different colored lines in the nail plate. These may happen and remain throughout treatment and will usually grow out once the nail grows completely. Usually these types of changes are not painful.

Cancer treatments that can cause nail changes

Some medications used to treat cancer can stop the growth of nails altogether while you are taking them. If you are getting treatment in cycles, the nails may begin to grow a little in between the cycles, but may produce white horizontal lines in the nail plate, called Beau's lines. These are harmless and will usually grow out once treatment is over.

Here are some of the changes you may have in your nails, and some of the drugs to treat cancer than can cause them. Being on more than one drug that can cause nail changes might increase how severe the side effects will be.

Type of nail change	Some cancer treatments that can cause It
Dark areas in cuticle	Targeted therapy antiangiogenic multikinase inhibitors (sorafenib, sunitinib)
Over-pigmented (hyperpigmented) nails	Chemotherapy such as Bleomycin, capecitabine, cyclophosphamide, dacarbazine, danorubicin, doxorubicin, idarubicin, melphalan, methotrexate Targeted therapy such as EGFR inhibitors (erlotinib, gefitinib) and monoclonal antibodies (cetuximab, panitumumab),
Fissures (deep grooves)	Targeted therapy or immunotherapy

	monoclonal antibodies (cetuximab, panitumumab)
Hemorrhages (splinter hemorrhage)	Chemotherapy taxanes (doxorubicin, docetaxel, paclitaxel, nab-paclitaxel)
Inflammation (paronychia)	Chemotherapy taxanes (doxorubicin, docetaxel, paclitaxel, nab-paclitaxel) Targeted therapy EGFR inhibitors (erlotinib, gefitinib, dacomitinib), monoclonal antibodies (cetuximab, necitumumab, panitumumab), and mTOR inhibitors (everolimus, temsirolimus)
Lifting of the nailbed (onycholysis)	Chemotherapy such as dacarbazine, daunorubicin, and mitoxantrone Targeted therapy such as mTOR inhibitors (everolimus, temsirolimus)
Nail loss	Chemotherapy such as bleomycin and 5-fluorouracil (5-FU)
Ridges, lines, creases, or other discoloration	Chemotherapy such as cyclophosphamide, doxorubicin, docetaxel, hydroxyurea, idarubicin, ifosfamide, and 5-fluorouracil (5-FU)

Managing nail changes

Many changes to nails that happen during cancer treatment can affect their appearance. For example, ridges or lines in your nails are not usually painful, but cause changes in how your nails look and feel. Once the treatment causing changes is done, the changes will usually go away over time as the nail grows out. The nail changes likely to be temporary include:

- Changes in nail color (dark areas; hyperpigmentation)
- Splinter hemorrhages
- Ridges, lines and creases in the nail

For minor, non-painful nail changes, the following might be helpful:

- Protect splitting, ridges, and delicate nails by using a water-soluble nail lacquer, or a prescription nail polish (that your doctor can provide) to protect your nails.
- Biotin (a dietary supplement) may be prescribed to strengthen your nails. Ask your doctor if it is safe for you to take biotin.

Some changes, however, are painful or involve an infection, and require treatment. Talk to your doctor about what is best for your situation before trying anything at home.

- Nail inflammation (paronychia): Treatment recommended by your doctor might include using a steroid ointment, and white vinegar and water soaks (1 part vinegar to 1 part water), disinfecting soaks, or oral anti-inflammatory medications, or antibiotics
- Lifting of the nailbed (onycholysis): Surgical removal of part of the nail plate may be recommended to relieve pain.
- Nail infections (bacterial or fungal): Antibacterial ointment may be recommended by your doctor and applied regularly to the nail and nailbed
- Fissures (deep grooves that may open or cause nail splitting): Surgical removal of part of the nail plate may be recommended to relieve pain

What the patient can do

It may not be possible to prevent nail changes, but you can do some things to help manage minor nail changes, and to avoid making them worse. Some things you can do include:

- Check your hands and feet every day to look for changes in your nails.
- Use a water-soluble nail lacquer on nails that have ridges, are delicate, or are splitting, to strengthen and protect them.
- Let your health care team know as soon as you see nail changes.
- Keep your nails trimmed short. Short nails are less likely to break or get caught.
- Keep your nails clean to avoid infections
- Protect your hands when putting them in water (such as washing dishes), gardening, or cleaning. Wear work gloves when doing these tasks to protect your nails
- Do not get professional manicures while you are getting treatment for cancer
- Wear loose-fitting shoes
- Avoid pressure to your nail beds (both fingers and toes)

- If you are taking a taxane drug (especially docetaxel), consider applying cold packs to nails for 15 minutes before the infusion of the drug, during the infusion, and for 15 minutes after the infusion. This may prevent nail lifting.

It's important to tell your health care team as soon as you notice any expected or unexpected changes to your nails. Prevention and avoiding injuries to your nails is an important part of keeping your nails as healthy as possible.

If you get medicine to treat your nail changes, be sure to tell your doctor how the medication is working for you or if new problems come up.

Questions to ask about nail problems

If you are concerned about nail problems or if you are at risk for nail changes, here are some questions to ask your health care team:

- Should I wear a protective nail lacquer? If not, why not?
- Can I continue my current nail care and treatment? Be sure to explain if you get special salon treatments, such as acrylic or gel nails or polish.
- Can my treatment cause nail changes? What changes should I expect?
- When can I expect these changes to start? When will they end?
- Is there anything I can do to avoid these changes?
- If I notice a change in my nails, what should I do?
- Are there other medications I should avoid if I have nail changes?
- Will having nail changes cause me to have to slow down, pause, or stop my cancer treatment? If this happens, what are my choices?

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