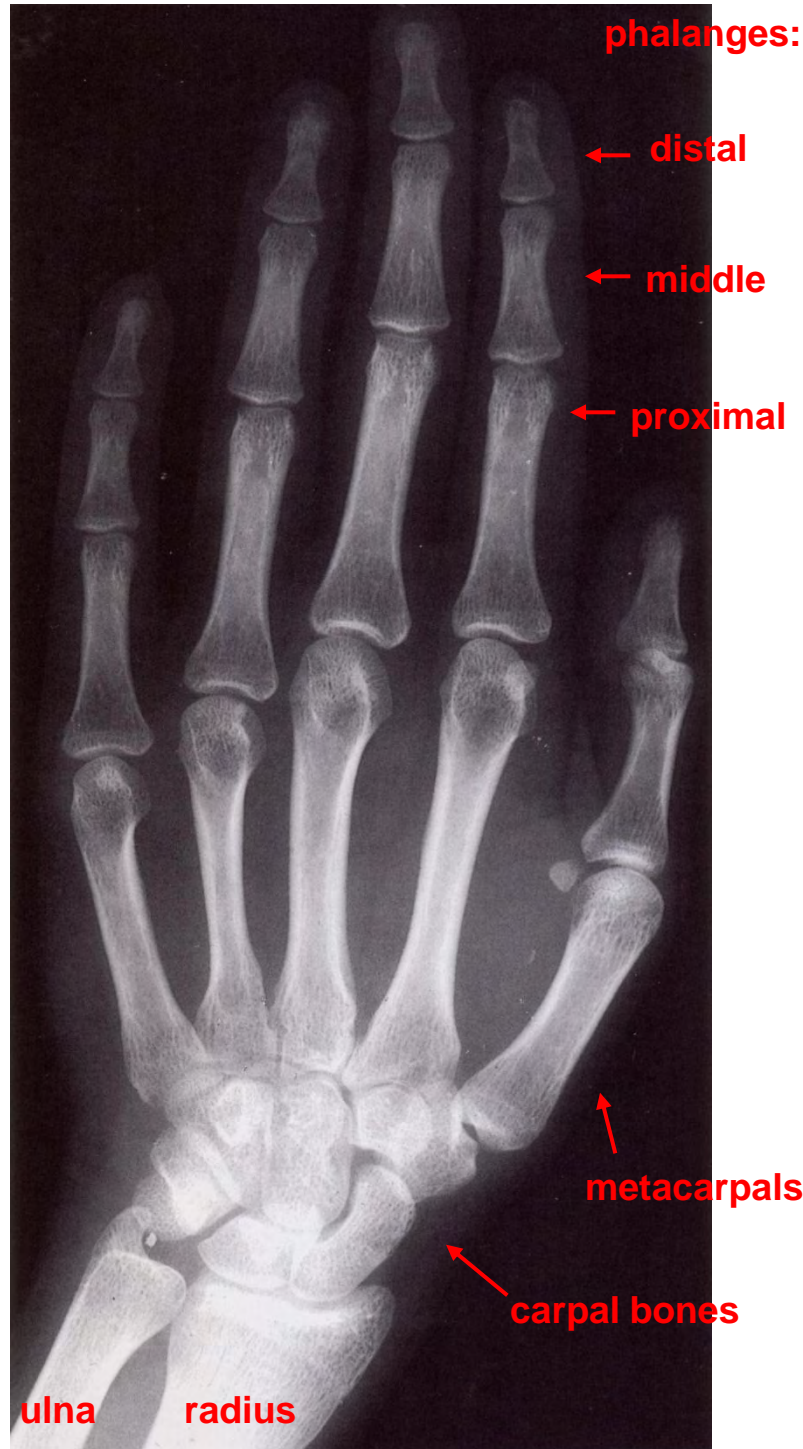


normal hand skeletons



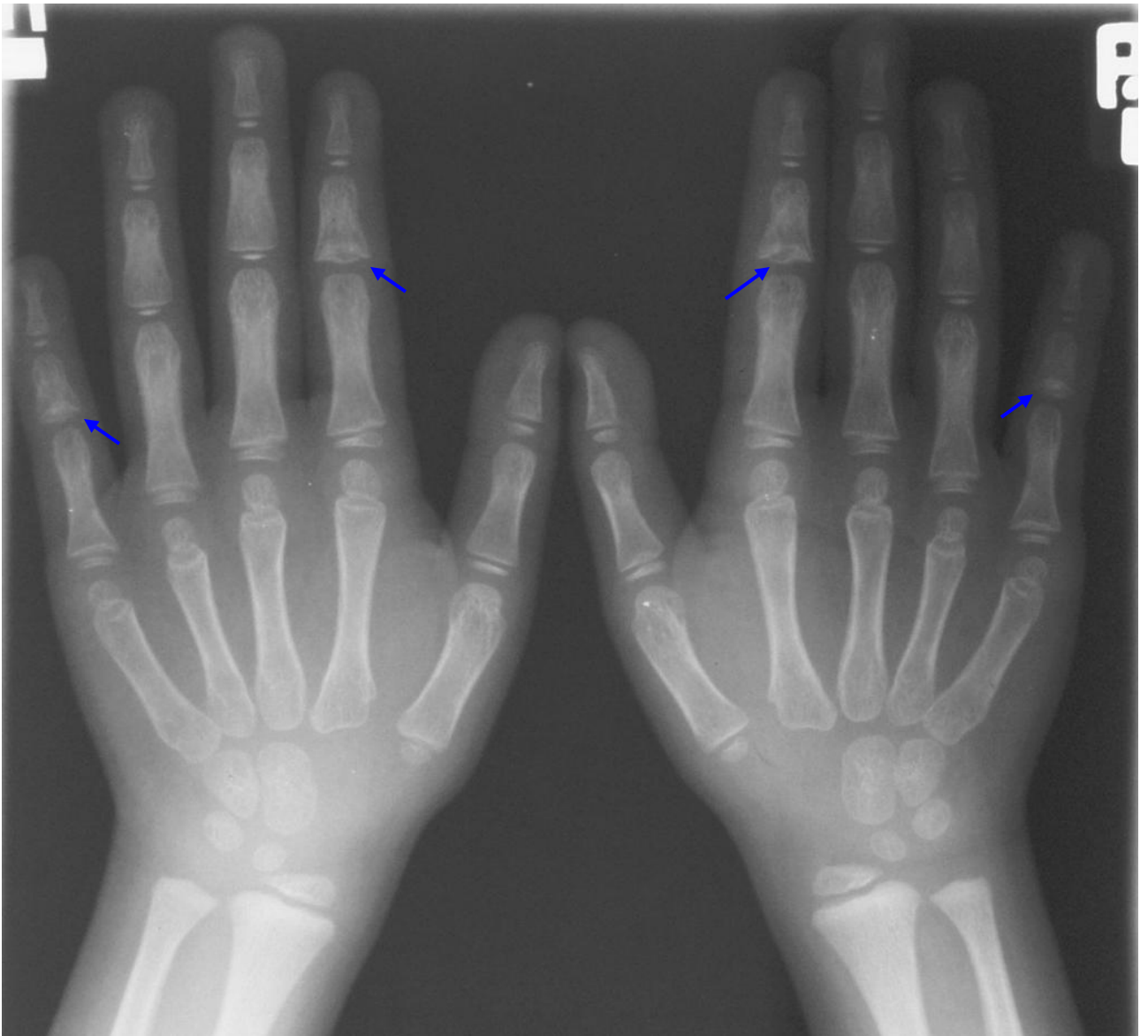
8-year old girl



18-year old girl

This is a brief description of the bones of the hand at different ages. In the growing hands, diaphysis and epiphysis separated by the growth plate (green arrows, where longitudinal growth occurs) belong to one bone! Upon maturation, the growth plate disappears as diaphysis and epiphysis fuse.

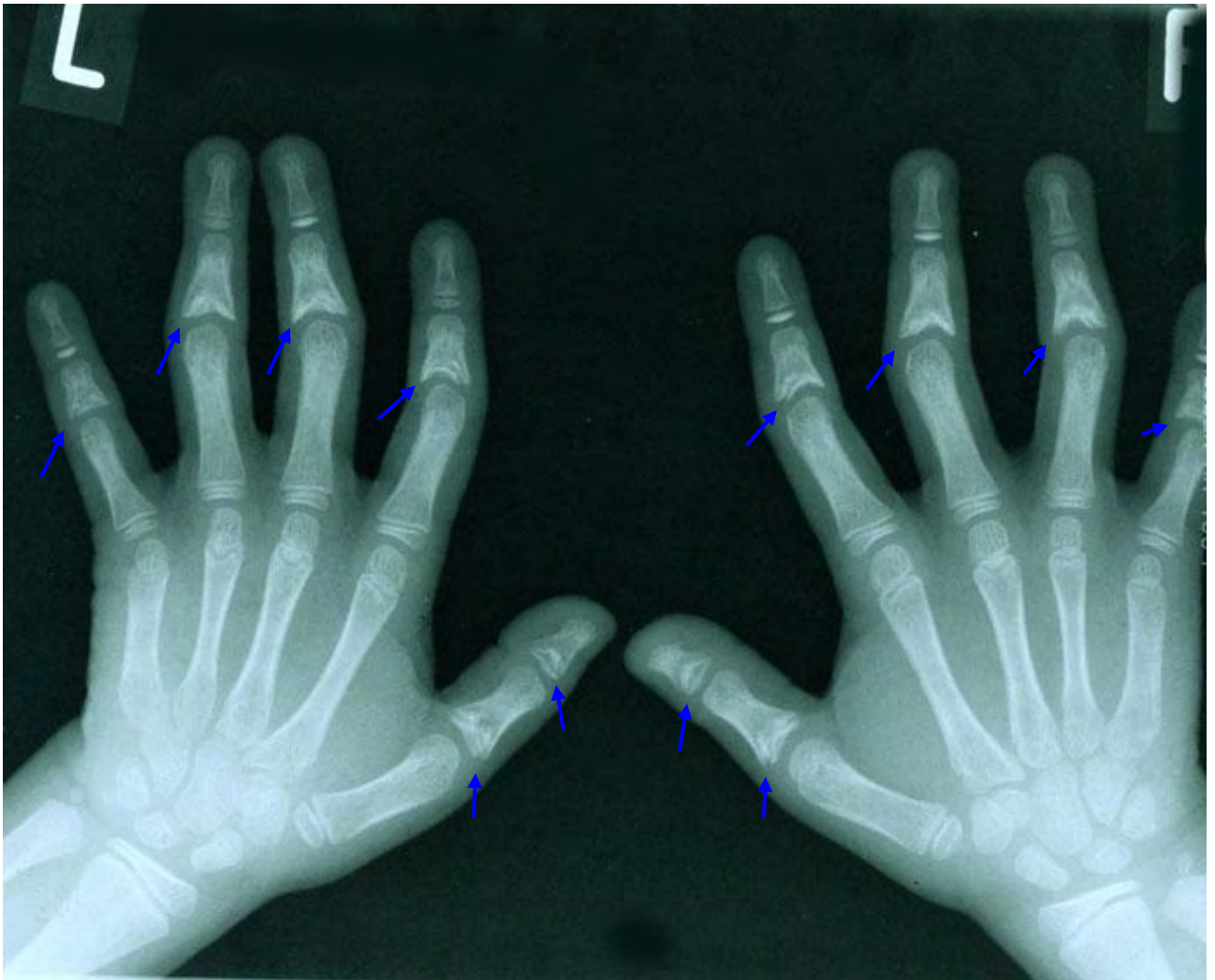
hands of a 7-year old girl with TRPS I



patient 1

Bone age is retarded. Some carpal bones are still missing, some epiphyses appear small for age, some epiphyses are cone-shaped (blue arrows) and appear already fused to the diaphyses. Affected bones are shorter than normal. The earlier growth plates close, the shorter the bone's final length will be.

hands of a 10-year old girl with TRPS I



patient 2

In this patient's hand more bones are affected than in patient 1. Note bending of fingers.

hands of a 14-year old girl with TRPS III



patient 3

Note that almost all growth plates are already closed. This results in severe brachydactyly. All metacarpals are affected, as well. Patients with TRPS III are smaller than those with TRPS I.

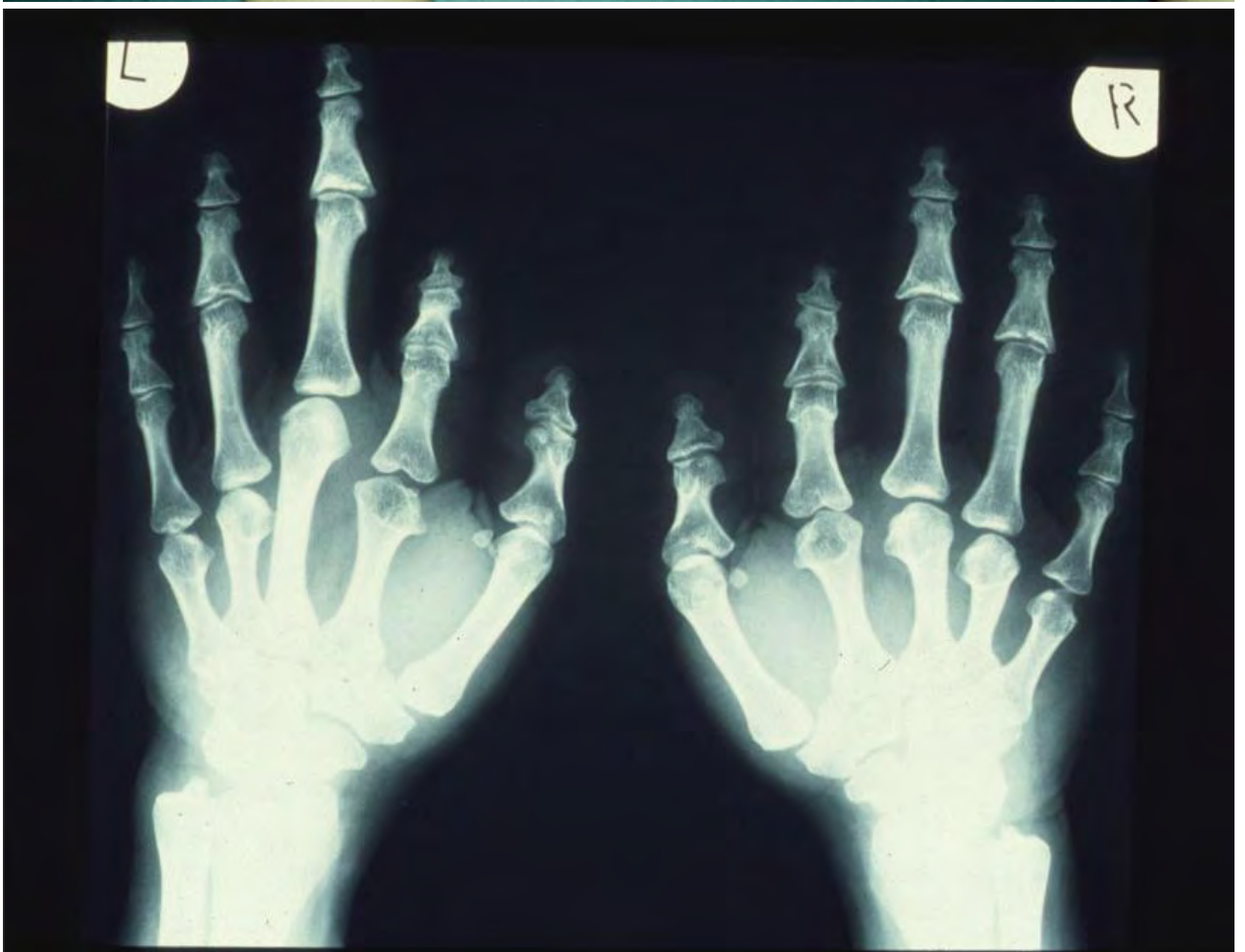
hands of a 14-year old girl with TRPS III



patient 4

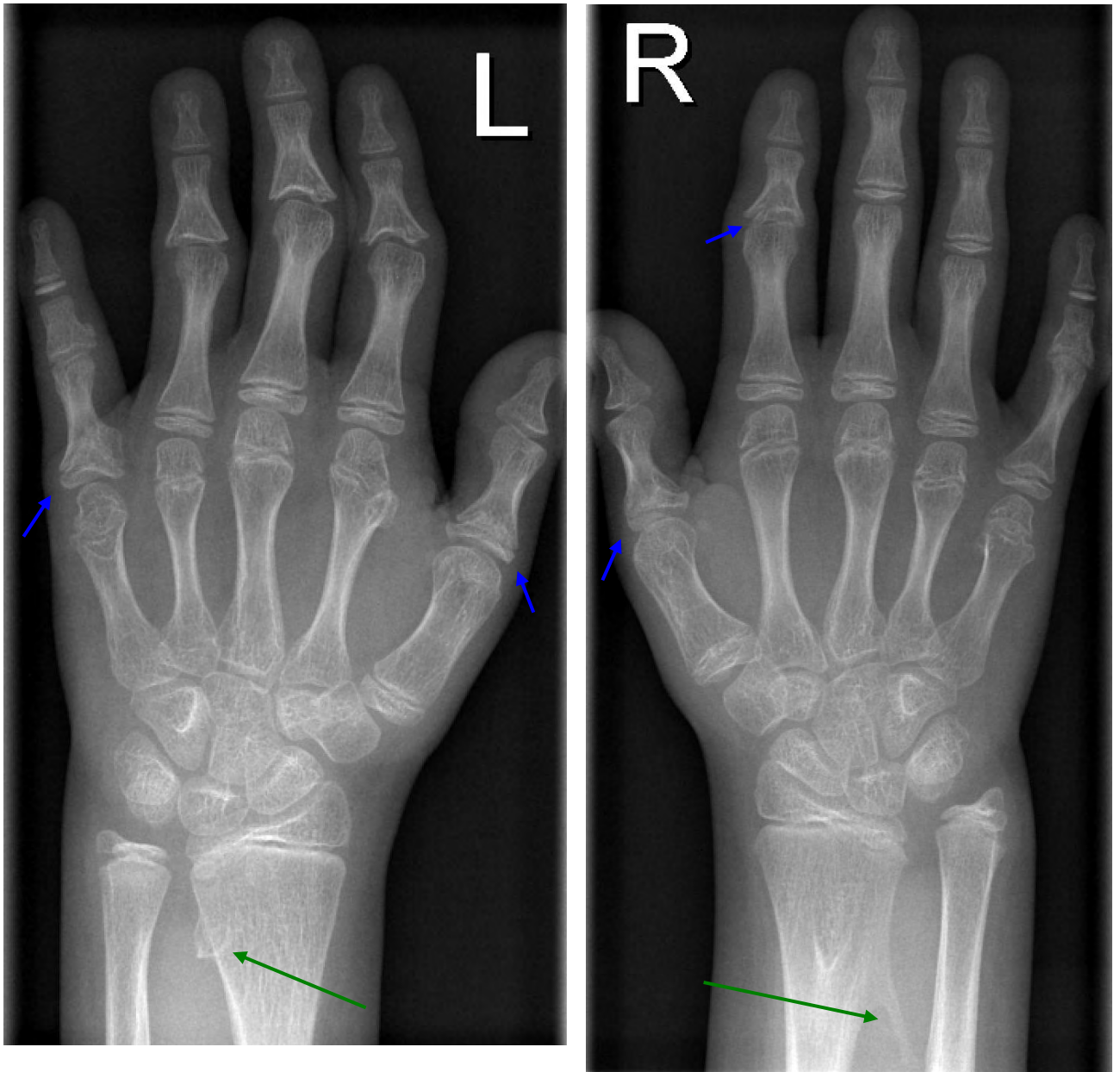
**Another female patient with the identical mutation as patient 3.
This is an example of the phenotypical variability.**

hands of an adult woman with TRPS I



patient 5

hands of a 14-year old girl with TRPS II (Langer-Giedion syndrome, LGS)



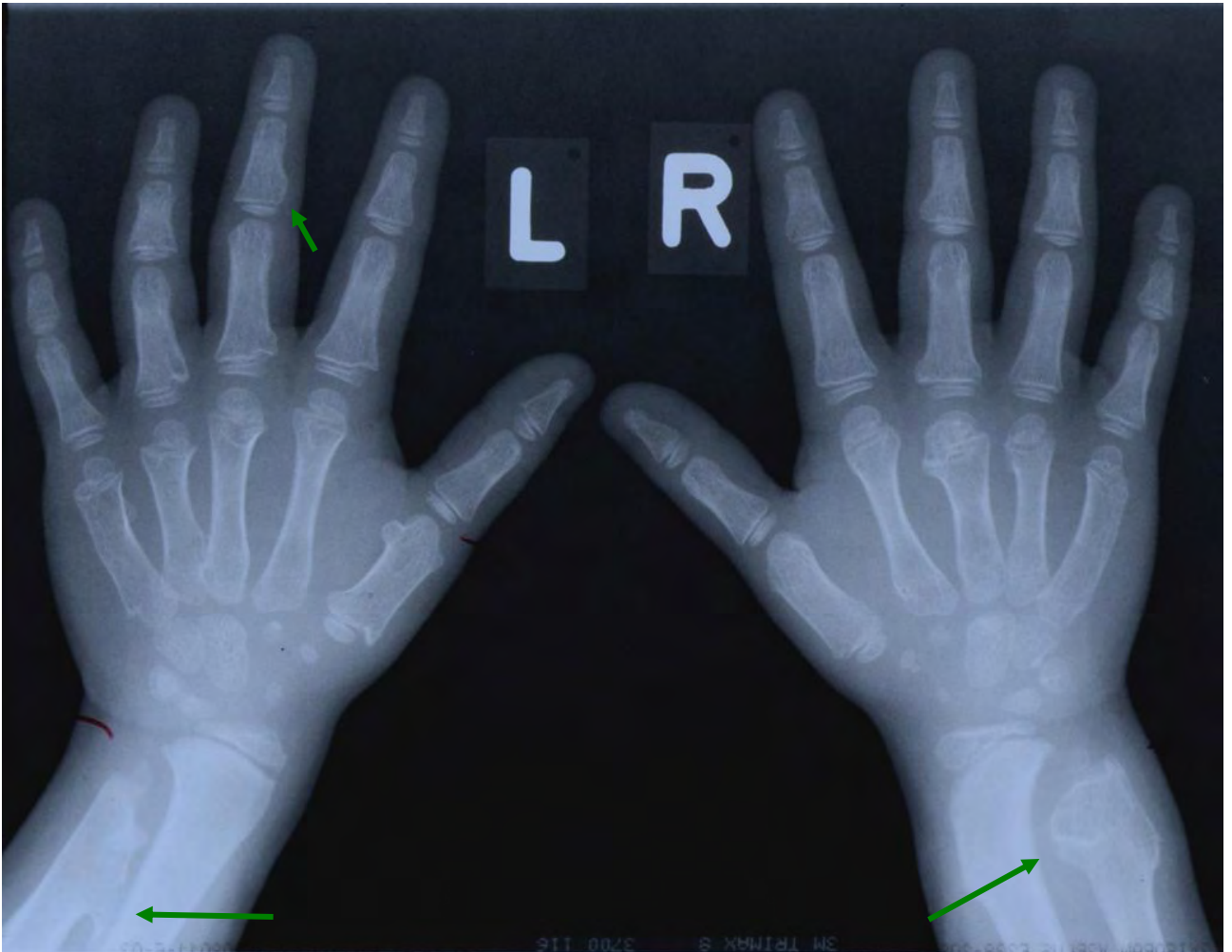
patient 6

Note that many growth plates are already closed, some cone-shaped epiphyses (CSEs) can still be identified (blue arrows). Exostoses are marked by green arrows.

left knee of patient 6 with TRPS II



hands of a 5-year old girl with multiple cartilaginous exostoses (but not LGS)



patient 7

This image is shown for comparison. There is no coning of epiphyses, bone age is not retarded. Exostoses are easily detectable at several bones (green arrows).

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