Melanocytic Nevi in Kids:  
When to Worry  
When *not* to Worry  
What to Do

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No conflicts of Interest to Disclose
Overview

- Melanoma risk factors in children
  - Congenital nevi
    - Small/Intermediate
    - Large/Giant
  - Acquired nevi
    - Scalp and acral
    - Role of dermoscopy
  - Spitz nevi
  - Signature nevi
- Melanoma risk factors in children
- Overview
Childhood Melanoma - Risk Factors

• May not be the same as traditional risks for adults
  • Hx of malignancy
  • Radiation, chemotherapy
  • Large congenital nevi
  • More de novo and amelanotic melanomas

Risks Factors
Childhood Melanoma -

Ferrari A et al 2006;23:42-47
Melanoma in Children and Teens

Swedish Cancer Registry, 1958-1992

- Compulsory reporting of melanoma
- 287 cases of melanoma in patients younger < 20 yrs

- Incidence increases: age 15 in females; increase 100% in 10 years > age 14 males (162) females (125)

Berg P, Lindel B. Arch Dermatol 1997;133:295-297

- Females > males
- Younger > 20 yrs

- 287 cases of melanoma in patients
- Compulsory reporting of melanoma

Swedish Cancer Registry, 1958-1992

Melanoma in Children and Teens
Childhood Malignant Melanoma in Males and Females by Age (n=287)
Childhood melanoma

- Arm and leg primaries in girls
- Head-trunk primaries in boys

Body distribution same as adults

- New figures: 3% from large congenital nevi
- Old data: 1/3 large congenital nevi;
- 2/3 de novo

- Family history of melanoma
- Heavy facial freckling
- Exposure
- Inability to tan after prolonged sun exposure
- Blue eyes
- Red hair
- >100 nevi; 2 mm or greater diameter

**Strongest risk factors:**

**More similar to adults**

**Risk factors in teens**
Congenital Melanocytic Nevus (CMN)
Small and Intermediate-Sized CMN

- The older I get the less I worry
- With exceptions no need to prophylactically excise small/intermediate CMN in pre-pubertal children
- Need for general anaesthesia
- Family preferences
- Relevance of family history, other MM risk factors
- With exceptions no need to
- The older I get the less I worry

Small and Intermediate-Sized CMN
- Hidden locations – scalp may be stretchier

- Outcome from surgery

- High-anxiety parents where reasonable

- Very unusual appearance

Exceptions needed in most cases excision before puberty not

Disease of adults not children

and Medium-sized CMN

Melanoma in Small
What do I actually do?

- Reevaluate at age 12 or 13 and consider options
- Sun Protection
- Use dermoscopy as adjunct
- If “busy”/complex need to follow more often
- “Busy” concept
- Explain “normal” and “not normal” change
- Educate parents what I am most worried about
- Come back in a few years
- If banal-appearing clinically, photodermatograph, have

?
What do I say about risk of MM in Small/Int CMN?

- Risk malignant transformation small scar size early vis a vis healing, scar size
- Exact risk is unknown but probably ~1% or less life-time risk
- Risk is virtually all after puberty
- No "window of opportunity" by excising
- Personal preferences
- Discuss aesthetic considerations and
- Ask about other MM risk factors
- Risk is virtually all after puberty
- Less life-time risk
- Exact risk is unknown but probably ~1% or
- Risk malignant transformation small

Small/Int CMN
Large and Giant Nevi

In 30 years UCSF Ped Derm practice:

- Six pediatric patients with Giant Cells Melanocytic Nevus (GCMN) die from Melanoma (MM)
  - 12 yo M, MM arising as deep skin nodule in setting of GCMN
  - 18 mo F, widely metastatic desmoplastic melanoma in setting of desmoplastic GCMN
  - 12 yo M, primary CNS melanoma due to NCM
  - 12 yo M, deep SQ mass (prey rhabdomyosarcoma)
  - 8 yo F, primary CNS melanoma due to NCM
  - 18 mo M, primary CNS melanoma in setting of desmoplastic GCMN
  - 18 yo M, widely metastatic desmoplastic melanoma in setting of deep SQ mass, GCMN

In 30 years UCSF Ped Derm practice: Six large and giant nevi
Cutaneous Melanoma

Large CMN and

Virtually no risk cutaneous MM in satellite nevi

Unknown whether surgery lowers but might

Can develop deep

torsos but 70% before age 10

1-1.1% (probably closer to 3% on trunk, lower on

RR (?) 50
Large CMN: Risk CNS disease


Asymptomatic but gets harder over time

15-25% chance asymptomatic NCM in most cases even if

MR can detect NCM in most cases even if

then MM in skin

Risk of CNS MM probably same or higher

probably more satellites confers greater risk

told increase over GCMN with less than 20

greatest risk is more than 20 satellite lesions (5)

15-25% chance asymptomatic NCM
MRI for CNS disease

- Yield of MR may be higher in young infants
- Normal MR possibly does not completely exclude possibility of NCM but would not repeat until puberty unless signs/symptoms
- If severe/extensive NCM, refer to neuro, consider repeat study (but ? Interval)
- ? Implications re: skin surgery
www.nevus.org

Nevus Outreach

Resource for Families:

Giant CMN
Acquired Melanocytic Nevi

• Role of Dermoscopy
• Scalp nevi
• Acral nevi
• Spitz nevi
• Signature nevi
Dermoscopy in Pediatric Patients

• Essential tool
• High pre-test probability of benign nevi
• Biopsy harder especially in younger kids
• Change is the norm; transitional patterns better appreciated and often very reassuring with dermoscopy
• Caveat: Need education to perform adequately

High pre-test probability of benign nevi

Dermoscopy in Pediatric Patients
Dermatoscopic “Pearls”

- Fried-egg moles often with central structureless or globular pattern and reticular pattern at periphery
- Star-burst pattern in pigmented Spitz nevi
- CMN: Globular, reticular, structureless patterns, follicular hypopigmentation
  - Can help in DDX CALM vs CMN early on
- Acral nevi made infinitely easier to evaluate
  - Parents like dermoscopy – perceive it as more than “just looking”
Scalp Nevi: May help to recognize the "Moley" Child
• May be indicator of eventual high mole number (>50 nevi)

Scalp nevi often get less worrisome in appearance over time. Various appearances:

- Eclipse nevi (tan center with stellate brown rim)
- Symmetric fried-egg nevi
Scalp Nevi: Appearance Scarier than Biologic Potential

• Scalp nevi: frequently larger than 6 mm in diameter and multicolored
• Often striking symmetry
• Distinctively bland and reassuring appearance to the trained eye
• Presence may be a marker for “moley” children
• Presence may be a marker for “moley” children

Routine biopsy not needed

Routine biopsy not needed

Recheck at puberty reasonable

Recheck at puberty reasonable

Kessides MC, Puttgen KB, Cohen BA. No biopsy needed for eclipse

Kessides MC, Puttgen KB, Cohen BA. No biopsy needed for eclipse

Scalp Nevi: Appearance Scarier than Biologic Potential

Scalp Nevi: Appearance Scarier than Biologic Potential
Approach to Children with Multiple Nevi

- Standardize approach: be consistent
- Photograph if hard to follow clinically
- Use dermoscopy for funny looking nevi
- Look for the “Ugly duckling”
- Recognize that change is expected, normal in children
- Photograph if hard to follow clinically
- Standardize approach: be consistent

Approach to Children with Multiple Nevi
Patients with multiple nevi tend to have their own unique “signature” morphology of nevus. The “signature” nevi have various characteristics:

- Solid brown
- Solid pink
- Eclipse nevi and Target (cockade) nevi
- Multiple halo nevi
- Lentiginous nevi, junctional and compound
- Non-pigmented melanocytic nevi
- Compound nevi with fried egg appearance
- Multiple lentigines
Spitz Nevi

- More common in children than adults; developmental stage of certain nevi on the way to compound nevi
- Most Spitz nevi are completely benign
- but children also can get atypical Spitz nevi
- Spitzoid melanoma
- Atypical Spitz
- You need truly expert dermatopathology!

Proposed algorithm of management by Tom et al.


More common in children than adults;
Spitz vs Melanoma: Molecular Markers?

- Increased HRAS gene copies and HRAS mutations (versus BRAF, NRAS mutations more common in melanoma)
- ? if p16 can differentiate Spitz from MM
- May be found in sentinel lymph nodes
- Different prognostic indicator than with MM
- Common in melanoma (versus BRAF, NRAS mutations more increased HRAS gene copies and HRAS)

Key Conclusions

- Melanoma risk factors different in pre-pubertal children.
- Small and intermediate CMN not as worrisome as once believed.
- Dermatoscope "best friend" of pediatric patients.
- Spitz nevi: May need to biopsy but also may need superb dermpath.
- Signature nevi very helpful clinically.
- Small and intermediate CMN not as worrisome as once believed.
- Pubertal children.
- Melanoma risk factors different in pre-pubertal children.