Diagnosis of Nodule



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Alexis Truax, RN
Debra Johnston, RN

Characteristics

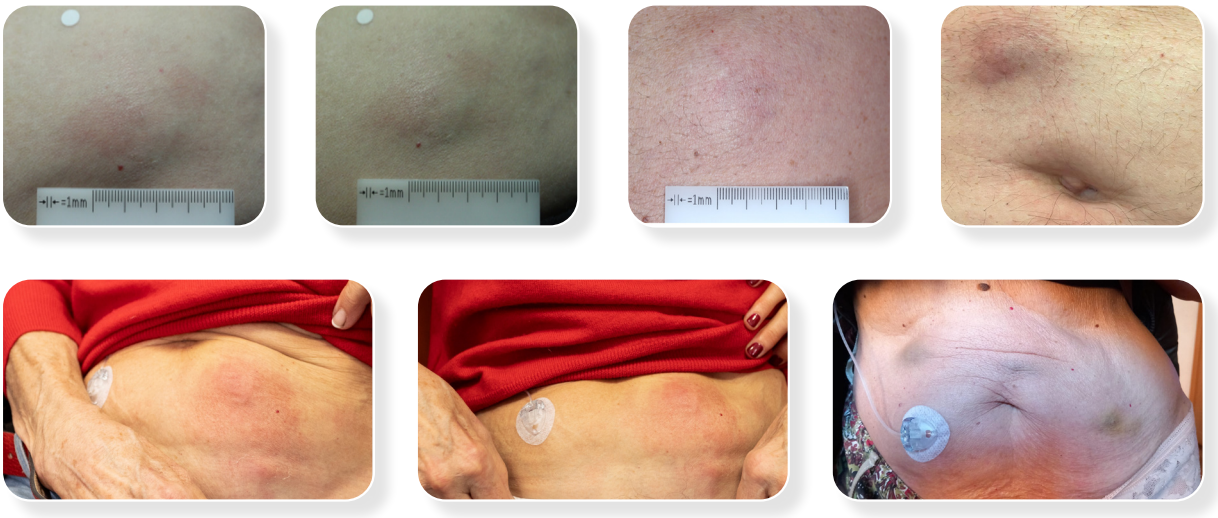
- **Nodules** are palpable, circumscribed lesions >1 cm in diameter.[1,2]
  - Different from **papules** (<1 cm) and **plaques** (>1 cm) which are usually more superficial and less voluminous.[3]
- Usually involve **dermis and/or hypodermis** and the greatest portion is typically **beneath the skin surface**.

Causes/Etiology

- Mechanisms of the development of subcutaneous nodules are not fully understood. Histological studies demonstrate the presence of an eosinophilic infiltration and suggest cell-mediated allergic type IV hypersensitivity or late-phase type I response.[4-6]
- Some evidence indicates that higher drug concentrations and rapid auto-oxidation may increase nodule formation.[7,8]

Prevention

- Subcutaneous nodules can be minimized by rotating infusion sites frequently and avoiding reuse of previously affected areas.



1. Mosby. Mosby's Medical Dictionary. 11th ed. St. Louis, MO: Elsevier; 2021. ISBN-13: 978-0-323-63915-6; 2. Nast A, Griffiths CE, Hay R, et al. The 2016 International League of Dermatological Societies' revised glossary for the description of cutaneous lesions. *Br J Dermatol*. 2016;174(6):1351–1358; 3. Potter PA, Perry AG, Stockert PA, Hall A. Essentials for Nursing Practice. 9th ed. St. Louis, MO: Elsevier; 2019. ISBN: 978-0-323-48184-7; 4. Acland KM, Churchyard A, Fletcher CL, et al. Panniculitis in association with apomorphine infusion. *Br J Dermatol*. 1998;138(3):480-482; 5. van Laar T, van Hilten B, Neef C, et al. The role of EDTA in provoking allergic reactions to subcutaneous infusion of apomorphine in patients with Parkinson's disease: a histologic study. *Mov Disord*. 1998;13(1):52–55; 6. Borgemeester RWK, van Laar T, Schuttelaar MLA. Cutaneous adverse drug reaction after apomorphine infusion, possibly caused by a systemic type IV hypersensitivity reaction to sodium metabisulfite: Report of 2 cases. *Contact Dermatitis*. 2018;79(5):316–318; 7. Borgemeester RWK, Diercks GFH, Jonkman MF, Van Laar T. Treatment of apomorphine-induced skin reactions: a pilot study. *Mov Disord*. 2015;30:S72; 8. Borgemeester RWK, Diercks GFH, Schuttelaar MLA, Van Laar T. Histology of subcutaneous nodules in PD patients treated with continuous apomorphine infusion: case series and review of the literature. Mov Disord. 2016;31:S653–S654.

Management of Nodules



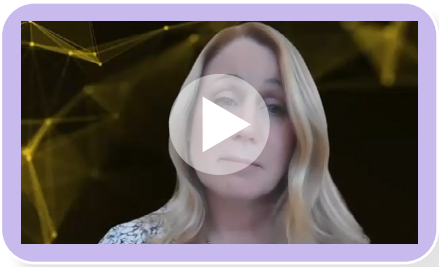
- Subcutaneous nodules can be minimized by **rotating infusion sites frequently and avoiding reuse of previously affected areas**.
- If nodules form, **gentle massage** (by hand or using a spiky rubber massage ball) may assist in resolution.
  - Local massage should proceed slowly and be stopped if discomfort becomes too intense.*
  - If tolerated, massage can be continued for at least a few days after the needle is withdrawn.*
- Persistent or painful nodules may require medical evaluation.

Preventing Nodules



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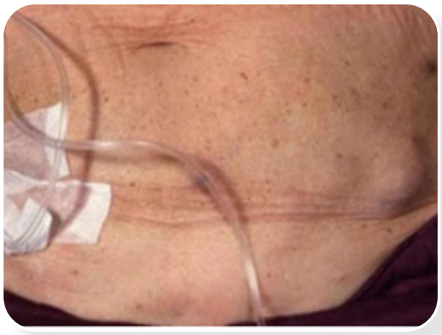
Nodule Management



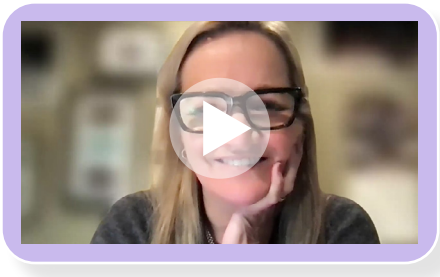
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Expert Insights: Signs of a Nodule**

- Firm, mobile nodules/hard areas of subcutaneous tissue
- No fever/constitutional symptoms
- No persistent erythema



Skorvanek M, et al. *Mov Disord Clin Pract.* 2016;4(1):21–31.



Expert insights video. Click to view
Lynne H. Robertson, Dermatologist

*Expert Opinion, Dr. Marc-André Doré, August 2023.
**Expert Opinion, Dr. Lynne H. Robertson, October 2024.

Expert Insights: Nodule vs. Abscess and Management

Assess/Observe
No pain, redness, fever, drainage → probable subcutaneous **nodule**

Consider
- **Ultrasound**
  - Diagnostic purposes/differential diagnoses
- **Massaging in circular motion 10 min/day**
- **Not using this site again until nodule resolved completely**
- **Monitoring for development of redness, increasing size, pain, fever**

Assess/Observe
Associated with fever, increasing redness/pain → possible **infection/abscess**

Consider
- **Ultrasound**
  - Diagnostic purposes/differential diagnoses
- **Culture drainage**
- **Antibiotic, incision and drainage**
  - Initiate similar oral/IV antibiotic regimen for cellulitis, such as cephalosporin (cephalexin) or penicillin (amoxicillin or cloxacillin), depending on criteria
  - Antibiotic for MRSA coverage (trimethoprim-sulfamethoxazole, doxycycline, minocycline, clindamycin)
- **Arranging to see patient/referral**

Abscess Management



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Nodules vs. Abscesses



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Debra Johnston, RN

Expert Opinion, Dr. Lynne H. Robertson, October 2024.
IV, intravenous; MRSA, methicillin-resistant *Staphylococcus aureus*.

Deep Lump in Skin: Care Plan

Is there any redness, fever, increasing pain → possible infection/abscess?



Consider
1. Starting antibiotic
2. Arranging to see patient

No pain, redness, fever, drainage → probable subcutaneous nodule



Consider
1. Massaging
2. Not using this site again until nodule has resolved completely

Plan of Action:

Roles and Responsibilities: