Breast Infections

Epworth Benign Breast Disease Symposium 2016

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Parenchymal Breast Infection

Infections associated with breast feeding

Central or subareolar abscesses +/- mammary duct fistula
Duct ectasia/Periductal mastitis complex

Peripheral breast parenchymal infections
Infections in the skin of the breast

• Usually secondary to underlying lesion
  – Sebaceous cyst
  – Hidradenitis suppurativa

Lactational Breast Infection

• Hospital vs General Practice
  – In general practice, 80% of infective episodes are puerperal
• Lactational infection common, but only small % progress to abscess formation
• Aust cohort study n=1193, 6/12 post partum
  – 17% mastitis
  – 0.4% abscess
  – of those started on antibiotics for mastitis, 2.9% developed an abscess
Lactational Breast Infection

- Staph aureus most common
  - Can include MRSA if hospital acquired
- Streptococci
- Staph epidermidis

- Usually gains entry via cracked nipple
- Milk is an ideal culture medium

Principles of treatment

- Appropriate antibiotics early, can reduce rate of abscess development
  - Flucloxacillin, augmentin
  - Erythromycin if penicillin allergy
  - Oral sufficient, IV only if septic
- Promote milk drainage
  - Best to continue to breast feed
- Breast US +/- needle aspiration if abscess suspected
- If doesn’t settle, exclude inflammatory cancer
Management of Suspected Breast Abscess

- All should have an US if suspect an abscess
- Don’t wait for development of fluctuation & pointing before drainage
- Management then based on state of overlying skin
- Aspirate under US guidance
  - Irrigate cavity with LA
  - Pus often quite thick, need 19G needle
  - Can observe cavity expand & collapse with fluid injection & aspiration
  - Review 2-3 days, repeat aspiration until no further fluid visible or no further pus is aspirated
Management of Lactational Abscess

- If overlying skin is thinned/abscess about to burst through skin
  - I & D
  - LA, small stab incision
  - Excise necrotic skin
  - Large incisions unnecessary, incisions don’t need to be dependent

- Drains & packing have no role in the modern day management of breast abscesses

- Encourage breast feeding
Non Lactational Breast Abscess

- Subareolar
  - Duct ectasia/periductal mastitis
  - Periareolar sepsis
  - Smoking a major causative factor
  - Presentation – periareolar inflammatory mass, abscess or mammary duct fistula

- Peripheral
  - Less common
  - Usually post menopausal
  - Treated in same manner

Subareolar Abscess
The duct ectasia/periductal mastitis complex

- Mild duct ectasia – part of ANDI
- Periductal mastitis
  - A description of the freq occurrence of periductal inflammation in association with duct ectasia
  - Exact aetiology still uncertain
  - No of pathological processes
    - Duct dilatation, stagnant secretions, duct obstruction by nipple inversion, non bacterial inflammation, bacterial inflammation, periductal sclerosis
    - Anaerobes - peptostreptococci
    - Complications more common & severe in smokers
Central Subareolar Infections

- Abscess are usually sub or periareolar
- Small, single, well localised & unilocular
- Usually younger women, can affect men

- US to exclude an abscess
- If inflammation but no abscess – antibiotics
  - Augmentin or erythromycin & metronidazole
Subareolar Abscess Management

• Repeated aspiration under LA
• Repeat 2-3 days
• Is skin thin or compromised – I & D under LA

Periductal Mastitis
Recurrent Periareolar Sepsis

• Patients often go onto develop recurrent infections
• Recurrent episodes of periareolar inflammation, recurrent abscesses or mammary duct fistula
• Such patients require definitive surgery to excise the diseased ducts
  – After they’ve stopped smoking!!
Total Duct Excision

- Circumareolar incision
- Incorporate any old incision, drainage sites or fistula openings
- If no old incision, inferior, centered at 6 o’c
- Develop plane b/w areola & ducts
- Divide ducts
- Excise 1-2 cm cone
- Maintain nipple eversion during closure & dressing
- Sutures to maintain eversion as last resort

Complications of MDE

- Haematoma
- Infection
- Flap necrosis
- Nipple inversion
- Poor cosmesis
- Recurrence
Mammary Duct Fistula

- Typical presentation
  - Young woman – average early 30s
  - History of several abscesses in one breast – either treated with drainage or spontaneously discharged
  Often areola is distorted
  - scarring having reduced the distance between the nipple & the edge of the areola in the radius of the fistula

Surgical Management of Mammary Duct Fistula

- Place lacrimal probe into fistula
  - Probe should exit through nipple
- Circumareolar incision incl external opening of fistula
- Develop plane between areolar skin & ducts
- Excise involved ducts & cone of surrounding tissue
- Selective excision of involved ducts preserves ability to breast feed (if desired)
- Complete excision of all ducts may minimise chance of recurrence
Complications

- Slow healing
- Recurrent abscesses & fistulas
  - Related to experience of surgeon
- Nipple necrosis
- Loss of nipple sensation
  - Occurs in 1/3

Recurrent Infection after Surgery for PDM

- Persisting abscess cavity
  - Need to excise it all
- Persistent proximal ducts
- Persisting or recurrent nipple inversion
  - core out the nipple to avoid this
- Early pregnancy
- Contralateral disease
- Factitial disease
- Smoking
Cigarette Smoking

• Related to the more serious inflammatory complications of duct ectasia
• 1st reported 1988, Schaffer et al, case controlled study
  – 85% with recurrent subareolar abscess were smokers cf 37% of controls
  – RR 9 light smokers, RR 26 heavy smokers
  – Only 10% had never smoked
• Bundred, early 90s, 2 papers
  – Smoking assoc w histological evidence of PDM, devt of non puerperal abscess, recurrent abscess after Rx, & mammary duct fistula
  – Heavy smokers more likely to have anaerobic bacteria & severe inflammatory complications
• Mechanism not clear
• Association same for males

Pathogenesis

• No single mechanism can explain the findings
  – Within one breast some ducts are normal & some dilated
  – Bacterial infection is demonstrated in only a proportion of cases
  – Obstruction must be due mainly to stagnation rather than mechanical obstruction
    • Most patients show no obvious duct obstruction on radiology or at surgery
    • Nipple discharge is mostly seen in older women & mastitis & infection seen at all ages, often in younger women
  – Often bilateral
  – Often disease starts in 2nd breast shortly after control of that in the 1st breast
Pathogenesis – a number of processes

- Stagnation of secretion due to squamous metaplasia either congenital or acquired
  - Seen partic in younger women
  - Often assoc with congenital nipple inversion
- Stagnation due to dilatation of the ducts
  - Hormone effect
  - Damage by periductal inflammation
  - ?autoimmune ?exaggeration of normal involution process

Pathogenesis – a number of processes

- Histological periductal inflammation found in 1/5 normal breasts
  - Leads to fibrosis obliteration of ducts & duct ectasia
  - Part of normal involution; nipple discharge & retraction can be regarded as manifestations of ANDI
- Exacerbation of periductal inflammation from leakage of duct contents
  - Further exacerbation from bacterial colonisation
- Colonisation of bacteria probably from sexual contact, oro-nipple bacteraemia
Pathogenesis – a number of processes

- Fibrosis related to bacterial inflammation or normal involution
  - Leads to secondary nipple retraction
- Cigarette smoking
  - Plays an important role in facilitating bacterial invasion

TB of the Breast

- Tuberculous mastitis
  - Consider in those from countries where TB is still common
  - India, PNG, Afghanistan
  - Immunocompromised
  - Usually have evidence of TB elsewhere
  - Can be difficult to differentiate from ca
  - Presents as nodular, disseminating & sclerosing
TB

• Nodular form
  – Painless mass, later involves skin forming ulcers & sinuses

• Disseminated form
  – Multiple foci, can become confluent & caseate with skin ulceration

• Sclerosing TB
  – Fibrosis rather than caseation; nipple retraction

Skin Associated Infections

• Abscesses associated with sebaceous cyst
  – Usu require I & D
    • LA
  – Usu staph aureus – antibiotics

• Cyst usually resolves after resolution of abscess
  – If persists consider excision
Hidradenitis Suppurativa

- Condition of the apocrine glands of the skin
- Classically skin in lower half of breast is involved
- Often present with recurrent abscesses
- Freq anaerobes
- I & D of abscesses
- More common in smokers
**References**

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