Causes of pelvic pain in women

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Pelvic pain is common

- Affects 1 in 5 Australian teens and women, impacts on individual and families, as well as schooling and work productivity.
- Pelvic pain is estimated to cost Australia more than $6 billion annually (The Pelvic Pain Report 2011, PainAustralia).
- Symptomatology can be complex, and can also include systemic symptoms such as fatigue, migraine, anxiety, premenstrual symptoms and low mood.

Pelvic pain can be from many causes

- Gynaecological
  - Primary dysmenorrhoea
  - Endometriosis
  - Adenomyosis
  - Ovarian cysts
  - Vulval pain
  - PID
- Non-gynaecological
  - Bladder
  - Bowel
  - Pelvic floor
  - Adhesions

Primary dysmenorrhoea

- Related to ovulatory cycles and due to myometrial contractions and vasospasm
- Higher rates in girls whose mothers have experienced dysmenorrhoea
- Prostaglandin effect
- PG inhibitors shorten duration and lessen flow
  - Effective in 80%
  - Mefenamic acid, ibuprofen, naproxen are the best
- COCP – reduces pain, flow and duration, can also avoid menses
- Fish oil supplements may be of benefit

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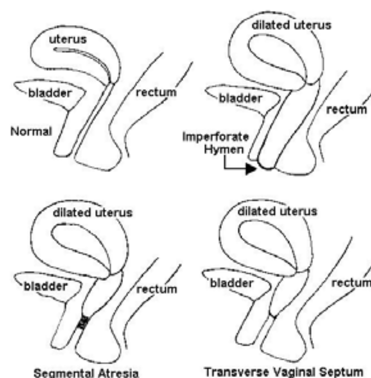
Secondary dysmenorrhoea

- 10% of adolescents with severe dysmenorrhoea
- Endometriosis
- Adenomyosis
- Mullerian duct abnormalities
  - Uterine didelphys + obstructed hemivagina
  - Transverse Vaginal septum



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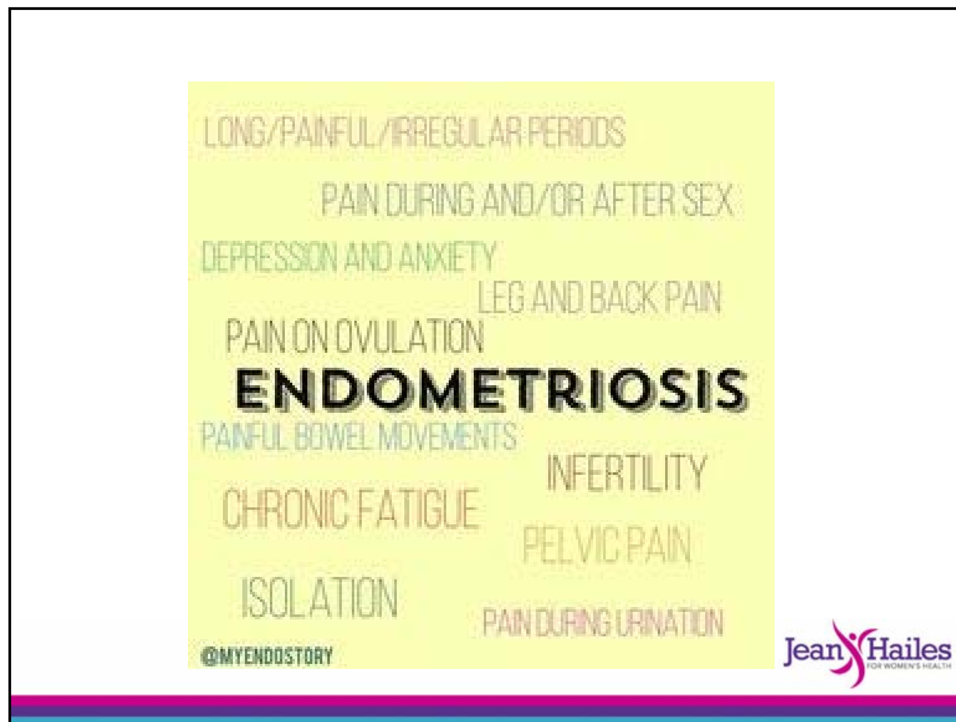

Endometriosis

- Ectopic endometrial implants, usually in pelvis but can occur anywhere in the body.
- Affects 5-10% women during reproductive years, rare before menarche or after menopause.
- Symptoms are diverse and non-specific, and do not correlate with disease severity. Can be asymptomatic (or present but not the cause of the pelvic pain).

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Clinical presentation

- Dysmenorrhoea and pelvic pain (79%)
  - Often 1-2 days prior to menses, can last throughout menses and for days afterwards
  - May not develop for years after menarche, although can be superimposed on primary dysmenorrhoea
- Dyspareunia (45%)
  - Typically deep, may persist for hours or days after
- Bowel upset (36%) or pain (29%)
  - Diarrhoea/constipation, bloating, cramping, dyschezia. Can occur without endometriosis infiltrating bowel. PR bleeding rare.

Clinical presentation - 2

- Infertility (26%)
- Ovarian mass/cyst (20%)
- Bladder symptoms (10%)
  - Urinary frequency/urgency during menses
  - Suprapubic pain with micturition
  - Urinary retention/haematuria/flank pain from ureteric obstruction not common
  - Urinary tract endometriosis may be asymptomatic.
- Non-specific symptoms including low back pain, pre-menstrual spotting, fatigue.

History

- Menstrual history including menarche, cycle, timing and/or progression of dysmenorrhoea
- Bowel/bladder symptoms
- Dyspareunia
- Severity of symptoms and impact on quality of life
- Treatments past/current including surgery and outcomes.

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Examination

- Abdominal examination
  - Tenderness, masses, scars
- Pelvic examination
  - Often normal
  - Most frequent abnormal finding is tenderness in posterior fornix/uterosacral ligaments (USL)
  - Other findings include thickened USL, nodularity in POD, uterine tenderness, fixed retroverted uterus
- Swabs/Pap if indicated and speculum tolerated.

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Investigations

- No diagnostic blood tests. Ca125 can be elevated in endometriosis but is not a sensitive marker and is not specific.
- Imaging
  - Pelvic USS – preferably T/V, good quality provider. Endometriomas have a characteristic heterogeneous "ground glass" appearance. Standard ultrasound will not detect superficial endometriosis or adhesions.
  - Specialist endometriosis USS – can identify size, location and depth of infiltrating lesions, adhesions; suspicion of superficial disease
  - MRI

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Endometriosis - management guidelines (ESHRE 2014)

- Pelvic pain and possible endometriosis may be managed with empiric medical therapy prior to laparoscopy. 80-90% of women will have some improvement in their symptoms.
- NSAIDs and/or hormonal treatment are both appropriate treatment to reduce endometriosis-related pain (and primary dysmenorrhoea).
- Choice of hormonal treatment will depend on cost, efficacy, side effects, need for contraception - clinicians are endorsed to discuss management options with patients.

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Endometriosis guidelines 2

- Hormonal contraceptive therapy can be progestagen only or combined oestrogen/ progestagen.
- Medical therapy will not decrease endometriomas or adhesions, or improve fertility.
- Surgical treatment of endometriosis is associated with a reduction in pain.

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Endometriosis guidelines 3

- Symptom recurrence requiring re-operation is common and increases with time (21.5% 2 years; 40-50% 5 years) Vercellini 2009
- Hormonal treatment post-op (for >1 year) increases duration of pain relief and delays disease recurrence.

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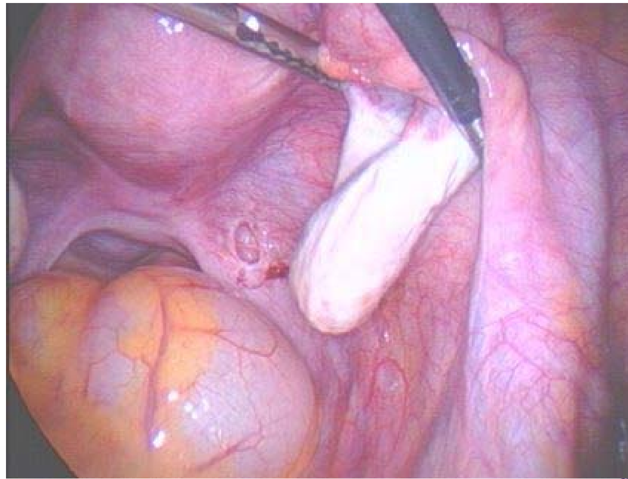
When to refer to a gynaecologist

- Failure to respond adequately to 3-6 months of medical management;
- Previously diagnosed endometriosis with return of symptoms that have not responded to appropriate medical management;
- Symptoms/signs suggestive of deep infiltrative endometriosis (dyschezia, deep dyspareunia, endometrioma on pelvic USS).
- Infertility.

Laparoscopy

- Required for diagnosis of endometriosis – visual +/- histological.
- Can treat disease with ablation/excision at time of diagnosis depending on operator experience
- A number of classification systems exist, most common is ASRM (American Society of Reproductive Medicine) – Stages 1 (minimal) to Stage 4 (severe).

Endometriosis stage 1-2



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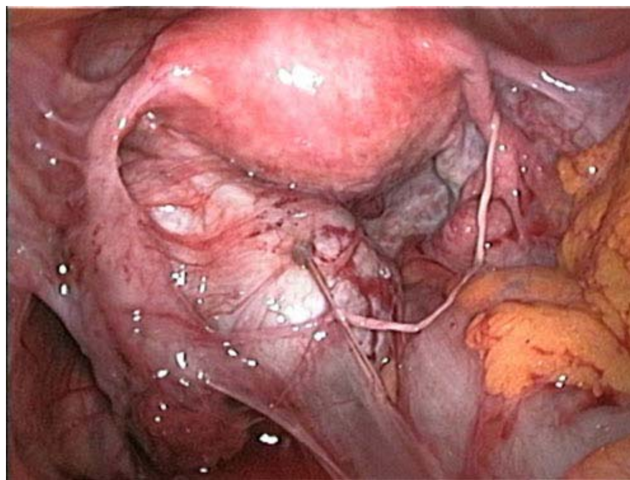
Endometriosis stage 4



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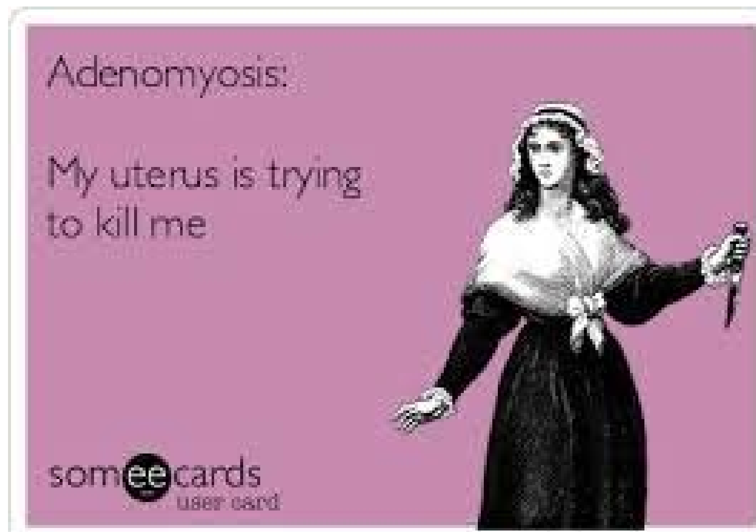
Natural history of endometriosis

- In studies where second-look laparoscopy was performed 6-12 months after a diagnostic laparoscopy showed endometriosis, about 1/3 stable, 1/3 regressed, 1/3 progressed.
- Symptoms often disappear or improve during pregnancy; there is minimal evidence that pregnancy affects the long-term course of endometriosis.



Adenomyosis

- Definition – endometrial glands and stroma within the uterine musculature.
- Myometrium becomes diffusely enlarged secondary to hypertrophy, or can have localised nodules (adenomyomas – can resemble fibroids clinically).
- Can coexist with endometriosis (but separate disease process), fibroids.
- Appears to be more common in parous women but can be present in young and nulliparous women.

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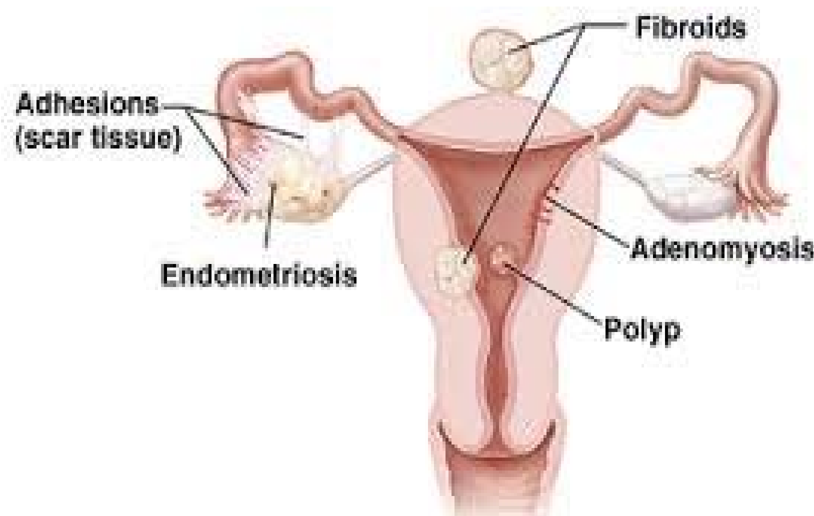

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Clinical manifestations

- Heavy menstrual bleeding (60%)
- Painful menstruation (25%)
- Dyspareunia and chronic pelvic pain may develop
- About 1/3 women are asymptomatic
- Probably decreases fertility but no evidence of increased miscarriage or obstetric problems
- Examination may reveal an enlarged tender uterus, but generally <12/40 size

Adenomyosis - diagnosis

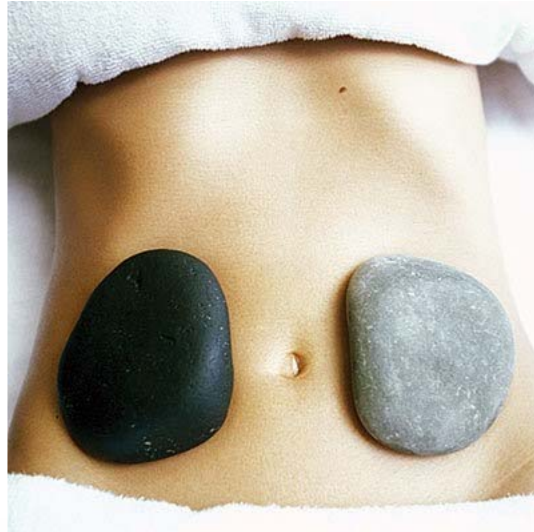
- Definitive diagnosis from histology of hysterectomy specimen; diagnosis is suggested by clinical manifestations.
- Good quality TVUS and MRI – asymmetrical thickening of myometrium (usually posterior more than anterior); myometrial cysts; loss of endomyometrial border (junctional zone); increased myometrial heterogeneity.
- Thickened junctional zone can be misinterpreted as thickened endometrium.
- No proven place for biopsy or CT.

Differential diagnosis

- May present as ongoing pain after endometriosis treatment or endometrial ablation.
- Pregnancy must always be excluded in a woman with abnormal uterine bleeding, especially with an enlarged uterus
- Infection (endometritis; chronic PID)
- The following conditions usually are not painful – fibroids; polyps; endometrial hyperplasia/malignancy

Treatment

- Only guaranteed treatment is total hysterectomy (uterus and cervix) – ovaries can be conserved.
- Hormonal manipulation with progestins (including Mirena) or oestrogen-progestin combinations may be beneficial, but symptoms return with treatment cessation.
- Conservative treatment options (endometrial ablation; adenomyomectomy; uterine artery embolisation) – small numbers, no strong evidence of benefit or future fertility outcomes.



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Ovarian cysts/adnexal masses

- A mass in the ovary, fallopian tube or surrounding connective tissue
- Common, can occur in any age group
- May be symptomatic or an incidental finding
- The goals of evaluation are to address acute conditions and to determine whether the mass is malignant.

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Differential diagnosis of adnexal masses in women

Extraovarian mass
Ectopic pregnancy
Hydrosalpinx or tuboovarian abscess
Paraovarian cyst
Peritoneal inclusion cyst
Pedunculated fibroid
Diverticular abscess
Appendiceal abscess or tumor
Fallopian tube cancer
Inflammatory or malignant bowel disease
Pelvic kidney
Ovarian mass
Simple or hemorrhagic physiologic cysts (eg, follicular, corpus luteum)
Endometrioma
Theca lutein cysts
Benign, malignant, or borderline neoplasms (eg, epithelial, germ cell, sex-cord)
Metastatic carcinoma (eg, breast, colon, endometrium)

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Approach to adnexal masses

- Age
  - Child/adolescent (adnexal masses in this age group are less common than in reproductive age women, but significant chance of torsion or maligancy (10-20%));
  - Premenopausal (many related to reproductive function; majority are benign);
  - Pregnancy (ectopic pregnancy; corpus lutea; theca-lutein cysts);
  - Postmenopausal.

Medical history

- Pain/pressure – onset, location, duration, severity;
- Associated symptoms – vaginal bleeding or discharge, fever, bowel/bladder difficulty, weight loss;
- Pregnancy, contraception;
- History of PID, infertility.

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Examination

- Size, consistency and mobility of mass;
- Abdominal distention, ascites;
- Tenderness;
- Nodularity in posterior fornix.
- Pelvic USS is preferred imaging study (transabdominal +/- transvaginal); MRI if secondary imaging required.
- Blood testing for bhCG; FBE; tumour markers.

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Urgent conditions

- Ectopic pregnancy;
- Adnexal torsion – typically abrupt onset of severe pain accompanied by nausea and vomiting (up to 70%), fever (up to 20%);
- Ruptured or haemorrhagic ovarian cyst;
- Tuboovarian abscess.

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Non-urgent conditions

- Persistent or recurrent physiological ovarian cysts;
- Benign ovarian cysts (teratomas, cystadenomas, endometriomas);
- Paraovarian cysts;
- Hydrosalpinx;
- Broad ligament fibroid.

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Consider specialist referral

- To **gynaeoncologist**
  - for masses that are suspicious for malignancy.
- To **gynaecologist**
  - for persistent or recurrent ovarian cysts, especially if >5cm diameter; persistent pain with adnexal masses; nonphysiological cysts eg dermoid, endometriomata.
- Discussion with **fertility specialist**
  - if asymptomatic hydrosalpinx/fibroid.

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A word about tumour markers…

- Ca125 – most widely used biomarker for epithelial ovarian cancer. Produced by ovary, Fallopian tube, endometrium, peritoneum (also pericardium, pleura).
  - Low sensitivity for ovarian cancer, esp early stage (25% stage 1 up to 78% stage 4)
  - Low specificity (also increased with benign gynae conditions {eg endometriosis, fibroids, PID}; nongynae conditions {eg pancreatitis, cirrhosis, diverticulitis}; nongynae cancers {breast, colon, liver, pancreas, lung}

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Screening for ovarian cancer in low-risk women

- Recommendation for a screening test is a positive predictive value of at least 10%, as well as to reduce mortality and be cost effective.
- In large studies, PPV of Ca125 alone is approx 3%; PPV of TVUS alone is 5%; no consistent data on whether combined screening reduces mortality.
- Estimated that >600 women would have to be screened annually for 14 years to prevent one death from ovarian cancer.
- With false positive results, 1 in 3 undergo surgery, 15% at least one serious complication.

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Other tumour markers

- CEA (carcinoembryonic antigen) – produced by mucinous cancers associated with GIT or ovary.
- Can also be elevated in other malignancies (breast, pancreas, lung, thyroid), and benign conditions (benign mucinous tumours, cigarette smoking, cholecystitis, inflammatory bowel disease, pancreatitis).
- Ca19-9 – mucin protein, may be elevated in malignancies of ovary, stomach, pancreas, GB.

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Other tumour markers

- Germ cell and sex cord-stromal ovarian tumours can secrete hormones (hCG, E2, T, inhibin) and other proteins (AFP, LDH).
- Consider these in a child/adolescent with an adnexal mass (germ cell tumour most likely pathology) or patient with signs of oestrogen excess (AUB) or androgen excess (hirsutism, virilisation).

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Vulvodynia

- “Chronic vulvar discomfort, most often described as burning pain, occurring in the absence of relevant findings or a specific, clinically identifiable, neurologic disorder”.
- Classified as localised or generalised, and provoked, unprovoked or both.
- Most chronic vulvar pain is localised provoked (aka “vulvar vestibulitis”).

Localised provoked vestibulodynia

- Tenderness to gentle touch/pressure in vulvar vestibule, hypertonicity of pelvic floor muscles.
- Pain typically provoked by sex, tampons and tight clothing.
- Primary or secondary (may not be an identifiable trigger).
- Chronic candidiasis frequently implicated.

Chronic vulvovaginal candidiasis

- Suggestive symptoms
  - Vulvar itch
  - Swelling or skin splitting with sex
  - Reduced lubrication
  - Burning or rawness with sex
  - Premenstrual flare of pain and/or itch
  - Reduction of symptoms while using antifungals
  - Previous positive cultures
- Cultures often negative within 4/52 of antifungal treatment.

Chronic VVC Management

- Trial of candida suppression if suggestive symptoms (even if culture negative)
  - Prolonged (6/12 or longer) as all available antifungals are fungistatic and yeasts proliferate when suppression is stopped;
  - Oral preferable (avoid potential contact dermatitis with prolonged topical treatments);
  - Fluconazole 150mg/week

Common coexisting pain conditions

- Vulvodynia
- Painful bladder syndrome
- Irritable bowel syndrome
- Chronic pelvic pain
- Fibromyalgia
- Migraine and chronic tension headache
- Chronic low back and neck pain

History

- Is the pain localised or generalised?
- Constant, with touch only or both?
- Is there an aftersensation? For how long?
- Is there a history to suggest chronic VVC, or a comorbid pain disorder?
- Any history of eczema/dermatitis?
- Sleep disorder, anxiety, depression?

Examination

- Expect to see normal skin but remember subtle changes. Redness alone can be normal.
- Observe for puborectalis "winking" and perianal spasm "sucked in vagina"
- Moistened cotton tip, good exposure, sensory exam slow and with explanation, outer to inner, 5 and 7 o'clock
- PV cotton tip discomfort
- Finger tip pelvic floor examination
- LVS if candidiasis suspected (speculum not necessary)

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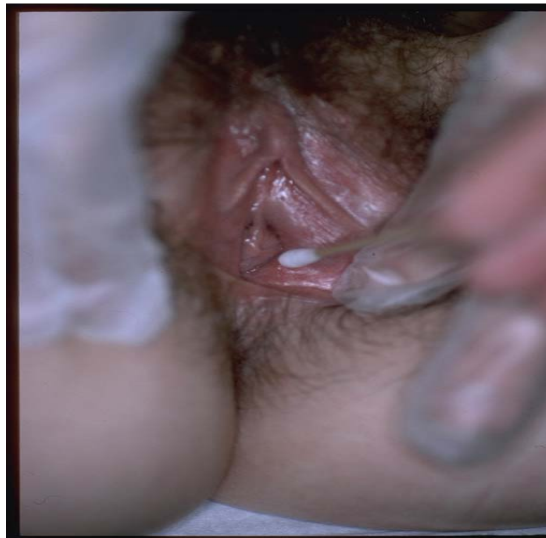
VVS Point Tenderness



Management

- Needs to be multidisciplinary
- Genital skin care (Melbourne Sexual Health Centre fact sheet mhsc.org.au)
- Pelvic physiotherapy
- Psychological and behavioural interventions, including sexual counselling. Sexual abuse is common (50% CPP clinic at RWH)
- Refer (gynaecologist or vulval clinic) if not responding to treatment after 3/12

Management - 2

- Topical treatments
  - Lignocaine (2% gel/5% ointment) to vestibule 10-20 mins before sex, or up to 5 times daily to reduce peripheral sensory input;
  - Amitriptyline 2-5% or gabapentin 2-6% bd (need to be compounded = $$);
  - Will sting for a few minutes after application.
  - Topical treatment has advantage of repeated touch which may help desensitisation, but watch for potential contact dermatitis.

Management - 3

- Pain-modifying medications
  - Low-dose TCAs eg amitriptyline are 1st line in chronic pain, can help with sleep difficulties.
  - Side effects are common and often dose-limiting
  - Start low (5-10mg nocte) and slowly titrate up depending on SEs and benefit. Often require >50mg. Benefit may not be apparent for 4-6/52 after reaching therapeutic dose.
  - Treatment 6-12 months.
  - Discontinue if no effect after 6/52 at maximum tolerated dose.

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Management - 4

- SNRIs – duloxetine and venlafaxine used in chronic pain, helpful if significant comorbid anxiety/depression. SSRIs less effective on chronic pain.
- Gabapentinoids – if TCAs contraindicated, not tolerated or not effective.
  - Pregabalin can be started at 75mg (or lower) and titrated slowly
  - Gabapentin starting at 300mg if pregabalin not tolerated.

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Generalised unprovoked vestibulodynia

- Less common, typically presents in older women. Onset may be sudden or gradual.
- Any pressure on vulva can aggravate pain (sitting, bike riding) but intercourse may be painfree.
- Low dose TCAs or gabapentinoids are often effective in pain reduction.

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Pelvic inflammatory disease (PID)

- PID refers to acute infection of the upper genital tract.
- 85% sexually acquired or BV pathogens, risk factors are multiple sexual partners, age <25, previous PID.
- 15% non-sexually acquired, associated with colonised vaginal flora (*Mycoplasma spp, E.coli, H.influenzae, Streptococcus spp),* associated with cervical instrumentation. Actinomycosis and TB rare.

Pelvic inflammatory disease (PID)

- May be subclinical - up to 2/3 of women with pelvic adhesions/tubal factor infertility that appears likely to be secondary to previous PID do not have a previous PID diagnosis.
- Rare in pregnancy due to cervical mucus plug, but may occur in first trimester.

Acute symptomatic PID - history

- Lower abdominal pain, usually bilateral, rarely >2/52 duration.
- Majority have mild to moderate symptoms.
- Abnormal bleeding (IMB, PCB, menorrhagia) occurs in >1/3, may have abnormal PV discharge or urinary frequency.

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Acute PID - exam

- Most women have abdominal tenderness in lower quadrants (may be in RUQ if perihepatitis).
- Cervical motion, uterine and adnexal tenderness on PV exam is defining sign; may have endocervical and/or vaginal discharge.
- Significant lateralisation of adnexal tenderness is uncommon, unless severe PID complicated by tuboovarian abscess.

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Acute PID - investigations

- Pregnancy test (exclude ectopic or complication of intrauterine pregnancy);
- PCR for *C.trachomatis* and *N.gonorrhoeae;*
- Microscopy of vaginal discharge (if available) for BV, trichomonas;
- Screening for other STIs - HIV, Hep B, syphilis.
- FBE, CRP, ESR if more unwell.
- Do not delay antibiotic treatment to wait for results.

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Additional evaluation

- If women are acutely ill, atypical symptoms or not improving significantly within 72 hours of treatment.
- USS is preferred modality if abscess or adnexal pathology suspected.
- Laparoscopy uncommonly performed unless patient clinically not responding to treatment.

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