Endometriosis update

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Abstract

Endometriosis is a common, chronic condition that affects women of childbearing age. It can significantly impact a woman's quality of life, her fertility and ability to work. Awareness of the condition is increasing amongst the general population, with drives to improve the services available to women. The National Institute of Clinical Excellence (NICE) has recently published guidance for clinicians and it is clear that a thorough understanding of the condition is important in being able to provide appropriate, individualised care to patients. This review provides a background on key aspects of endometriosis, including imaging and surgical management, as well as discussions on the impact of endometriomas on fertility and scar endometriosis.

Keywords abdominal wall endometriosis; complications; deep infiltrating endometriosis; endometriomas; endometriosis; endometriosis/diagnosis; endometriotic nodule; magnetic resonance imaging; rectovaginal endometriotic nodule; surgery; urinary tract endometriosis

Introduction

Endometriosis is an oestrogen-dependent, chronic inflammatory condition characterised by the proliferation of endometrial glands and stroma outside the uterine cavity. Bleeding, inflammation and fibrosis result in the formation of endometriotic nodules and adhesions, which mediate the development of symptoms. While the most commonly affected site remains the pelvis, distant sites can be involved and may mimic other disease processes. Prevalence is estimated at 2–10% in women of childbearing age, and as high as 35–50% in women with pain or infertility. Peak incidence is between 25 and 35 years old, however, it may also affect younger women presenting with dysmenorrhoea or pelvic pain. Endometriosis can be a debilitating condition which can lead to time off work and reduced earning capacity. The EndoCost study demonstrated it costs the UK economy £8.2 billion a year in treatment, loss of work and healthcare costs.

Risk factors and genetics

What do we know?

The clinical manifestation of endometriosis and presence of endometrial tissue outside the uterine cavity is likely the end point of a variety of aberrant biological processes. Many theories exist about the aetiology, but a single, definitive mechanism has yet to be agreed. The most commonly cited theory to explain peritoneal endometriotic lesions is Sampson's Retrograde Transplantation Theory. This suggests endometrial cells are driven through the fallopian tubes, via reflux action during menstruation, and are deposited in the pelvis where they invade serosal surfaces. While up to 90% of women may have retrograde menstruation, only 15% of women with retrograde flow have confirmed endometriosis. This discrepancy, alongside the fact that endometriosis can be found in non-pelvic sites, prepubertal girls and in men, supports the need to consider other theories.

The most convincing explanation for endometriosis is the embryological Mullerianosis Theory. This proposes that, if the basis of endometriosis is an alteration of genital tract structures during organogenesis, it should be possible to see misplaced endometrial tissue outside the uterine cavity of female human foetuses at post-mortem. In a study which examined 36 foetuses with no anatomical genital tract abnormalities, four foetuses were found to have primitive endometrium outside the uterine cavity, expressing oestrogen and CA125 receptors. This 11% correlates well with the reported adult prevalence of endometriosis alongside the fact that low recurrence rates exist after complete surgical excision of endometriosis. Some of the other theories reported in the literature are summarised in Table 1.

Presentation

The index of suspicion

It is widely acknowledged that it can take an average of 7.5 years from the onset of symptoms to a diagnosis of endometriosis. Pain, in the form of dysmenorrhoea, generalised pelvic pain and deep dyspareunia are among the most common presenting symptoms. Other features include infertility, often coexisting with bowel/bladder symptoms, back pain, low mood, reduced quality of life and fatigue. The source of delay may, in part, be due to women concealing the severity of their symptoms, not acknowledging their symptoms until infertility becomes an issue or, perhaps, the challenge of differentiating causes for pain and dysmenorrhoea with years of empirical treatment. A proportion of women may be falsely reassured that they do not have endometriosis after an initial laparoscopy. This would be particularly relevant for young women having laparoscopic evaluation in their teens, when the disease may not yet be fully expressed.

It has been reported that more than 50% of patients with deep infiltrating endometriosis (DIE) actually present with associated symptoms of dyschezia and dysuria. Up to 20% of women with endometriosis have concurrent irritable bowel syndrome, interstitial cystitis and migraines. The use of a pain diary can be a useful adjunct to understanding the impact of symptoms. Given the genetic basis of endometriosis, a family history should also be explored. Taking a targeted history is imperative and NICE advice that endometriosis should be suspected in women presenting with one or more of the symptoms in Table 2.

Knowing the signs

An abdominal and pelvic examination should routinely be offered to women where endometriosis is a differential. While many cases of mild disease may be associated with a paucity of findings, there are subtle signs associated with deeper disease

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Other theories to explain endometriosis

Overview

Coelomic metaplasia theory	Metaplastic transformation of cells lining the visceral/abdominal peritoneum into endometrium, triggered by hormonal/ environmental stimulus.
Immune dysfunction	Autoimmune disease more common in women with endometriosis. Defective immune response in elimination of menstrual debris, inflammation and promotion of ectopic endometrium.
Oxidative Stress	Immune cells produce cytokines promoting endometrial growth+angiogenesis. Higher levels of cytokines/vascular endothelial growth factors in peritoneal fluid in endometriosis.
Stem cells	Undifferentiated stem cells with ability to regenerate into endometriotic deposits.

Table 1

which should be identified. These include uterine motion tenderness, a retroverted uterus, reduced organ mobility, tender nodules in the posterior fornix, or palpable thickening of the uterosacral ligaments. The cervix can also be laterally displaced if there is unilateral uterosacral thickening. Occasionally, lesions may be visible in the vaginal mucosa or cervix on speculum examination. An endometrioma may be detected through palpation of a tender, adnexal mass. Features consistent with deep endometriosis warrant direct referral to a specialist endometriosis service.

Diagnosis

Still the gold standard?

A diagnostic laparoscopy remains the leading investigation to confirm a diagnosis of endometriosis. A systematic approach should be favoured, with inspection of the ovaries, tubes, ovarian fossae, uterosacral ligaments, Pouch of Douglas (POD), uterovesical fold, rectosigmoid and appendix. Adhesions and pelvic mobility should be noted. The operation report should describe the size, macroscopic appearance, location and depth of infiltration for all lesions. Images should be available to facilitate optimal record keeping and patient education, especially if referral to a specialist endometriosis service is anticipated.

NICE guidance for suspecting endometriosis

Presenting symptoms of endometriosis

Chronic pelvic pain
Period related pain affecting daily activities
Deep pain during or after intercourse
Period related/cyclical gastrointestinal symptoms, or painful bowel movements
Period related/cyclical urinary symptoms or haematuria
Infertility in association with one or more of the above

Table 2

Biopsies can be considered during diagnostic procedures, but negative histology does not exclude endometriosis. Specialist experience is key in ensuring a correct diagnosis of endometriosis is being made from visual inspection alone, with reported sensitivity of 94–97% and specificity of 77–85%.

There are no clinically useful serum markers to diagnose or monitor disease activity in endometriosis. While CA125 can be raised in severe disease, it lacks sensitivity and is not routinely used. Peritoneal markers have been proposed, but these are subject to cyclical variations and none yet exist with enough specificity to correlate with endometriosis alone. There is no current evidence to indicate whether endometriosis is progressive in all cases or can remain stable over time.

More than meets the eye

The appearances of endometriotic implants are highly variable. Superficial disease may be easy to identify with the classical appearances of powder burn lesions or flame red vesicles and minimal anatomical distortion (Figure 1). However, these findings will be absent in cases of more severe disease, where nodularity, plaques and peritoneal tethering are present. In deep infiltrating disease, an obliterated POD may be the only visible sign. Anatomical distortion should be evaluated, including relationship of the ureters and rectosigmoid to any deep nodules. From a clinical perspective, grading endometriosis by pathological type is considered the most effective tool, as described in the last review.

Isolated superficial endometriosis can be an incidental finding, diagnosed after an operative laparoscopy for another reason; these women may well be symptom free and no further treatment is indicated. NICE have recently recommended that research is required to determine whether laparoscopic treatment of isolated superficial endometriosis with associated pain produces a clinical, sustained improvement in symptoms and whether this is cost effective in the longer term.

The role of the multi-disciplinary team (MDT)

Providing structured care

The recent NICE document on endometriosis emphasises how processes should be in place for achieving prompt diagnosis of endometriosis, in view of the impact that delayed diagnosis can have on quality of life, in addition to delays in access to effective treatment. The potential complexity of endometriosis also demands high quality, multi-disciplinary care and for this reason they encourage referral of deep infiltrating disease into specialist endometriosis centres. These centres are British Society of Gynaecological Endoscopy (BSGE) accredited centres who provide integrated, specialist links with urology, colorectal surgery, pain management services, gynaecological radiology, fertility and nurse specialists, in addition to providing high level laparoscopic surgical expertise.

It's good to talk

While effective diagnosis and prompt management are the foundations of good practice for endometriosis, the importance of non-clinical, non-surgical resources should not be overlooked. Women should receive, or be signposted towards, up to date information on endometriosis. It may be appropriate to

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