Vaginal Atrophy and DMPA

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Introduction

Depot medroxyprogesterone acetate (DMPA) is an injectable contraceptive that is used worldwide by millions of women. It is highly effective in prevention of pregnancy and is also utilised for its non-contraceptive benefits including control of menstrual bleeding, treatment of endometriosis and endometrial protection[1]. The mode of action is primarily by suppression of ovulation, and two thirds of women using DMPA will have a serum oestrogen in the post-menopausal range[2]. This may cause a reversible decrease in bone mineral density[3], but sexual dysfunction related to oestrogen deficiency is mentioned infrequently[4] as a possible side effect, and vaginal atrophy (VA) is thought to occur rarely[5].

Aim

The aim of this case series is to raise awareness of the potential for DMPA to cause clinical vaginal atrophy in users, resulting in vaginal dryness, superficial dyspareunia and sexual dysfunction.

Case Series

This is a case series of 10 non-consecutive patients on DMPA for contraception who presented with superficial dyspareunia and had clinical and microscopic evidence of vaginal atrophy.

- Symptoms had been present for between three months to three years, and they had been using DMPA for between six months and six years.
- Clinical findings consistent with vaginal atrophy were confirmed in all patients.
- Vaginal microscopy showed a left shift of the vaginal maturation index (VMI) consistent with vaginal atrophy.
- Serum estradiol was measured in five patients: three of these had levels below 50pmol/L and the other two had levels respectively of 115pmol/L and 154pmol/L.
- DMPA was stopped in all patients and treatment was commenced with estriol 0.1% vaginal cream in a regimen of 0.5gm daily for two weeks followed by a maintenance regimen of twice weekly for 2-4 months.
- At follow-up
  - All patients reported either complete resolution of symptoms or a substantial improvement in symptoms.
  - Clinical signs of vaginal atrophy had resolved in all patients.
  - 9 patients had an improvement in VMI after treatment, (one patient had cytolysis so a VMI could not be performed).
- 6 patients had developed pelvic floor dysfunction due to superficial dyspareunia, and they were referred for pelvic health physiotherapy.

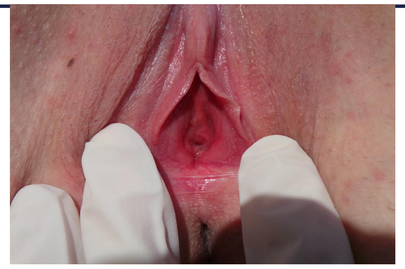

Figure 1a: Vaginal vestibule of patient 3 before treatment

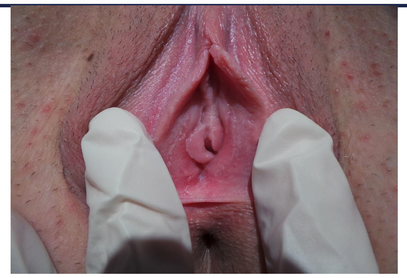

Figure 1b: Vaginal vestibule of patient 3 after treatment

Patient	Age	Time on DMPA	VMI Baseline	Microbiological Testing	Oestradiol pmol/L	VMI Follow-up
1	26	2 years	VMI 0/95/5	Negative - yeast, chlamydia, gonorrhoea, trichomoniasis, BV	<50	Cytolysis – no VMI result available
2	27	9 months	VMI 0/95/5	Negative - yeast, chlamydia, gonorrhoea, BV	<50	VMI 0/60/40
3	19	6 months	VMI 90/10/0	Negative - yeast, chlamydia, gonorrhoea Positive - BV	<50	VMI 0/5/95
4	27	18 months	VMI 0/95/5	Negative - yeast, chlamydia, gonorrhoea, trichomoniasis Positive - BV	115	VMI 0/70/30
5	31	6 years	VMI 0/100/0	Negative - yeast Positive - BV	154	VMI 1/79/20
6	26	2 years	VMI 5/95/0†	Negative testing for yeast, chlamydia, gonorrhoea, BV	Not done	VMI 0/30/70†
7	22	5 years	VMI 30/70/0†	Negative - yeast, chlamydia, gonorrhoea, trichomoniasis Positive - BV	Not done	VMI 0/70/30†
8	24	3 years	VMI 5/95/0†	Negative - yeast, chlamydia, gonorrhoea, trichomoniasis, BV	Not done	VMI 0/40/60†
9	20	1 year	VMI 30/70/0†	Negative - yeast, chlamydia, gonorrhoea, trichomoniasis Positive - BV	Not done	VMI 0/30/70† After stopping both DMPA and COC
10	26	1 year	VMI 20/80/0	Negative - yeast, chlamydia, gonorrhoea, trichomoniasis Positive - BV	Not done	VMI 0/5/95

Abbreviations: VMI – vaginal maturation index; DMPA – depo medroxyprogesterone acetate; COC – combined oral contraceptive; BV – bacterial vaginosis; FU – follow-up; † VMI performed by author

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Discussion

- Vaginal atrophy is a common cause of genital symptoms in menopause occurring as a result of ovarian failure and a reduction in serum estradiol affecting the estrogen-sensitive tissues of the genital tract[7]. It may also occur under other circumstances including with hormonal contraception[8].
- In the vagina this results in thinning of the vaginal mucosa, loss of tissue elasticity, loss of lactobacilli and an increase in mixed bacteria. There may be an increase in vaginal discharge with a vaginitis and vaginal odour.
- The diagnosis of VA is made by an evaluation of symptoms and clinical findings, sometimes supplemented by microscopy and a VMI[7]. The VMI is a method of quantitating the proportion of mature vs parabasal epithelial cells on a vaginal gram stain - an increase in basal cells and midzonal cells supports a diagnosis of vaginal atrophy[9].
- Women on the DMPA generally become hypo-estrogenic, and about two thirds of these women have a serum estrogen in the post-menopausal range. In general, vasomotor symptoms do not occur due to the high circulating levels of progesterone[10], but VA and other genitourinary symptoms associated with the menopause may occur in a proportion of women using this method of contraception.
- Sexual dysfunction is mentioned infrequently in the medical literature as a possible side effect of DMPA and vaginal atrophy is thought to occur rarely. To the author's knowledge only one case report has been published of a patient on DMPA with clinical vaginal atrophy[5].
- This case series illustrates that although the prevalence of VA in DMPA users is unknown, it may be more common than previously thought.

Conclusion

- Depot medroxyprogesterone acetate may cause clinical vaginal atrophy.
- This should be considered as a potential cause of symptoms in any patient on DMPA presenting with complaints of vaginal dryness and discomfort, superficial dyspareunia, or abnormal vaginal discharge, and patients considering DMPA as a contraceptive choice should be warned of these possible side effects.
- Further research exploring the occurrence of these side effects, along with clinical and laboratory findings, in larger groups of longer term DMPA users would help to clarify the prevalence of VA and provide useful information for prescribers and users of this contraceptive method.

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