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Endometriosis in a Patient with Multiple Sclerosis Receiving Mitoxantrone: A Case Study

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Dear Editor,

The patient was a 29-year-old female, a known case of multiple sclerosis (MS) for six years. The initial symptom was a blurring of the right eye. She used Interferon β-1α intramuscular weekly for two years. Then, due to relapse, she received two cycles of mitoxantrone, two years ago. She did not receive any medication in the recent two years.

About four months ago, she went to the emergency room of a nearby hospital for abdominal pains. The pain was initially felt on the right side of the abdomen but then became generalized after one day. She also had fever, loss of appetite and nausea. She underwent surgery with a diagnosis of ovarian hemorrhagic cyst and endometriosis. On pathologic examination, necrotic areas and a cyst were observed with siderophages (hemosiderin-containing macrophages) surrounded by endometrial stroma in the cyst wall. The final diagnosis was an endometrial cyst. She had abdominal pain again after one month. Transvaginal ultrasound showed a cyst of 30 $\times$ 37 mm with fine internal septation and a clot in its wall, suggesting a hemorrhagic cyst. Moreover, there was free fluid in the cul-de-sac. The patient received Diphereline (Decapeptyl®) 3.75 mg monthly injections with a diagnosis of endometriosis.

The patient had no previous history of ovarian and uterine diseases. She had one child with no history of abortion or weight loss. On laboratory examination complete blood count (CBC), liver function test (LFT) and thyroid function test (TFT) were all normal. Her abdominal pain alleviated following the use of Decapeptyl® but she developed hypesthesia in the distal part of the right hand that had a progressive course and was gradually accompanied by weakness. The patient received methylprednisolone 1 gr for five days with a diagnosis of MS relapse. For maintenance therapy, glatiramer acetate was prescribed 40 mg subcutaneously three times a week.

The prevalence of endometriosis is reported in about 10% of normal population; and factors such as nulliparity and a history of short severe menstrual cycles can predispose the patient to endometriosis (1). Surgery also increases the risk of endometriosis and its recurrence (2). An association is reported between MS and endometriosis (3). Although not proven, it is even claimed that endometriosis increases the risk of MS (4). Therefore, it should be considered that the coincidence of MS and endometriosis in the current study patient may not be incidental. In addition, the patient had received two cycles of mitoxantrone. Mitoxantrone is an immunosuppressant (5). It is not clear whether an immunosuppressant agent may predispose the patient to endometriosis (6). However, a study on baboons showed that although immune suppression did not increase the prevalence of endometriosis, it increased the odds of its progression (7). No similar study is performed in humans, but it can be postulated that mitoxantrone contributed to the progression and severity of endometriosis in the current study patient.

Considering the increasing trend of MS in Iran and the introduction of new drugs that may suppress the immune system, side effects similar to those of the current study patient should be expected. On the other hand, MS is more prevalent in females than males. The patients are mostly young and in the reproductive age. Such side effects can jeopardize their productivity and future. Therefore, paying special attention to the possible side effects of these drugs can increase the status of public health and improve the conditions of the families. This case report highlighted the importance of necessary screenings in such patients.

References

1. Vigano P, Parazzini F, Somigliana E, Vercellini P. Endometriosis: epidemiology and aetiological factors. *Best Pract Res Clin Obstet Gynaecol.* 2004;**18**(2):177–200. doi: 10.1016/j.bpobgyn.2004.01.007. [PubMed: 15157637].

2. Bozdag G. Recurrence of endometriosis: risk factors, mechanisms and biomarkers. *Womens Health (Lond).* 2015;**11**(5):693–9. doi: 10.2217/whe.15.56. [PubMed: 26439119].
3. Alviggi C, Carrieri PB, Pivonello R, Scarano V, Pezzella M, De Placido G, et al. Association of pelvic endometriosis with alopecia universalis, autoimmune thyroiditis and multiple sclerosis. *J Endocrinol Invest.* 2006;**29**(2):182–9. doi: 10.1007/BF03344095. [PubMed: 16610248].
4. Nielsen NM, Jorgensen KT, Pedersen BV, Rostgaard K, Frisch M. The co-occurrence of endometriosis with multiple sclerosis, systemic lupus erythematosus and Sjogren syndrome. *Hum Reprod.* 2011;**26**(6):1555–9. doi: 10.1093/humrep/der105. [PubMed: 21471158].
5. Minagar A. Current and future therapies for multiple sclerosis. *Scientifica (Cairo).* 2013;**2013**:249101. doi: 10.1155/2013/249101. [PubMed: 24278770].
6. Garcia-Velasco JA, Rizk BR. Endometriosis: current management and future trends. Philadelphia, US: Jaypee Brothers Medical Publishers; 2010.
7. D'Hooghe TM, Bambra CS, Raeymaekers BM, De Jonge I, Hill JA, Koninckx PR. The effects of immunosuppression on development and progression of endometriosis in baboons (Papio anubis). *Fertil Steril.* 1995;**64**(1):172–8. [PubMed: 7789554].