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## **Summary**

The aim of this study is to discuss the clinical features, diagnosis and treatment options of endometriosis associated with pain in adolescents and to evaluate safety of laparoscopic management. The records of adolescent patients (10-21 years) who were admitted in our Department for diagnostic and/or operative laparoscopy were selected. The symptoms prevalence, operative findings, and the response to surgery were retrospectively reviewed.

Fifty-one teen-agers were submitted to laparoscopy. Endometriosis was detected in 16 (31.4%). The majority of patients (50%) presented with stage I. Only one patient presented with stage II (6.3%), 3 with stage III (18.8%), and 4 (25%) with stage IV. Out of the 16 girls, 14 (87.5%) complained of pain. Of those with severe disease all 4 were treated laparoscopically without complications. In all cases the symptoms were relieved. There was no morbidity or mortality.

Adolescent girls with pelvic pain have a high incidence of endometriosis. Severe dysmenorrhoea is the most relevant symptom. Laparoscopy should be carried out in all adolescents and teenagers with chronic pelvic pain unresponsive to medical treatment.

## **Introduction**

Chronic abdominal pain in children is defined as pain of more than two weeks' duration. The pain may be persistent or recurrent. It is a frustrating concern to the child, the parents and the physician. The differential diagnosis

of abdominal pain in children varies with age, gender, genetic predisposition, nutritional exposure and many environmental factors (*Lake AM, 1999*).

Although endometriosis is recognized to be a common cause of chronic pelvic pain of women in the reproductive period, its occurrence in adolescents has long been underestimated. Adolescent endometriosis is not rare. Documented rates in adolescent pain undergoing laparoscopy for chronic pelvic pain range from 19% to 73% (*ACOG 2005*).

It's difficult to evaluate the correct incidence of endometriosis, particularly in I-II stage, because a surgical exploration is required. With the availability of laparoscopy and the growing awareness of the possibility of endometriosis in this population, more accurate assessment is becoming available. Laparoscopy plays an important role in managing chronic pelvic pain, not only in confirmation of the diagnosis, but also in surgical intervention, therapy, and patient reassurance (*Hewitt GD et al., 2000*).

The records of adolescent endometriosis cases in our department were reviewed to evaluate age distribution, diagnosis, clinical stage, and safety of laparoscopic treatment.

## Materials and Methods

We reviewed the incidence, type and clinical stage of endometriosis as well as the main symptoms leading to diagnosis of endometriosis of 51 girls aged 10-21 years who were submitted to laparoscopy in our department between 1993- 2003.

Each case of endometriosis was staged according to the Revised American Fertility Society classification of endometriosis (rAFS).

Patients were contacted by telephone and asked to answer a very detailed questionnaire. Our self developed questionnaire can be used to evaluate recurrence of painful symptoms (dysmenorrhoea, pelvic pain and deep dyspareunia), course of infertility and recurrence of disease in patients with endometriosis. A VAS (Visual Analogue Scale) was used to assess severity of dysmenorrhoea, dyspareunia, dyschezia and chronic daily pain. The event dates considered were the date of operation and the date of reappearance of moderate or severe pain or the last menstruation before a positive pregnancy test.

SPSS version 13 was used to record and statistically analyse data. Statistical analysis was conducted by chi-square and Student's *t*-test for independent samples.  $P < 0.05$  was considered significant in all comparisons.

## Results

During the period from 1993 to 2003, 51 teen-agers were submitted to laparoscopy in our Department and endometriosis was detected in 16 (31.4%). Mean age of patients with endometriosis was 19.8 years (range 16-21 years).

Out of the 16 girls, 14 (87.5%) complained of pain (7 with chronic or acute pelvic pain, 11 dysmenorrhoea, 6 deep dyspareunia). In one case endometriosis was an incidental finding, without symptoms, during a laparoscopic gonadectomy for Swyer's Syndrome. Another girl was submitted to laparoscopy

Symptoms	No. of patients (%)
Chronic or acute pelvic pain	7 (43.7)
Dysmenorrhoea	11 (68.7)
Dyspareunia	6 (37.5)
No symptoms	2 (12.5)

*Table 1: Symptom Distribution in 16 Adolescents*

Stage	No. of patients (%)
I	8 (50)
II	1 (6.3)
III	3 (18.8)
IV	4 (25)

*Table 2: Stage Distribution in 16 Adolescents*

for ovarian endometrioma observed at ultrasonography (Table 1).

The majority of patients (50%) presented with stage I. Only one patient presented with stage II (6.3%), 3 with stage III (18.8%), and 4 (25%) with stage IV (Table 2).

Superficial red lesions were most commonly observed. Of those with severe disease all 4 were treated laparoscopically without complications. Among 14 complaining pain, symptomatology was relieved. There was no morbidity or mortality.

Regarding the treatment modality, surgery only was performed in 6 cases (37.5%), and medical management following surgery in 10 (62.5%). Surgical treatment included ovarian cyst enucleation, bipolar electrocoagulation. Ten patients (62.5%) followed a medical treatment after laparoscopy. Medical treatments included oral contraceptives (2 cases), or GnRHa (8 cases).

During this follow-up, 5 patients in search of a pregnancy, 3 became pregnant.

## Conclusions

In the past, endometriosis was considered as a disease of women in their third or fourth decade of life. It was not until the 1970s that endometriosis was found to be a common cause of chronic pelvic pain in adolescents (*Kleinhaus S et al., 1977*). In fact, most contemporary articles cite endometriosis as the most common finding at diagnostic laparoscopy in adolescent patients with chronic pelvic pain (*Hewitt GD et al., 2000*). In this study endometriosis was detected in 16 (31.4%) of 51 teen-agers submitted to laparoscopy.

Most patients with endometriosis report cyclic or acyclic pelvic pain as their chief complaint. Other common symptoms include dysmenorrhoea, ir-

regular menses, dyspareunia, abdominal pain and nausea, constipation and diarrhoea, and urinary complaints. More than 90% of adolescents with endometriosis have diffuse or localized tenderness on physical examination (*Hewitt GD et al., 2000*). The main symptom among our patients was dysmenorrhoea as 68.7% of patients suffered of it.

Unlike older women, adolescents with endometriosis rarely have adnexal enlargement, cul-de-sac nodularity, or a fixed, retroverted uterus. Most adolescents in whom endometriosis is identified at laparoscopy are found to have stage I or II disease (based on AFS guidelines) (*Reese KA et al., 1996; Laufer MR et al., 1997*). Most endometriotic implants seen in adolescents are superficial red lesions thought to be precursors to the more typical black lesions seen in adults (*Redwine DB, 1987*). The change in the appearance of endometriotic lesions and stages of endometriosis suggests the probable progression of endometriosis with age. Our data show a 50% with stage I, and 6.3% with stage II. The prevalence of stage III or IV was 43.7%. The reason for the high percentage of advanced stage of endometriosis in our adolescents is most likely that these girls did not visit a gynaecologist until they had a severe painful symptomatology or a palpable mass.

Endometriosis has been diagnosed in patients as young as 11, even before menarche (*Goldstein DP et al., 1980; Reese KA et al., 1996*). Early identification and treatment of endometriosis not only could improve quality of life but also lower risk for long-term sequelae such as pelvic adhesive disease and infertility.

Safe and minimally invasive in adolescents, laparoscopy has become an important diagnostic tool in evaluating chronic pelvic pain in this patient population. The most common indications for a diagnostic laparoscopy include a mass identified by pelvic exam or ultrasound, progressive dysmenorrhoea, chronic pelvic pain unresponsive to oral contraceptives or nonsteroidal anti-inflammatory drugs (NSAIDs), painful irregular vaginal bleeding, and any diagnostic dilemma such as suspected chronic PID or chronic appendicitis (*Hewitt GD et al., 2000*).

Medical therapy can be proposed after an initial optimal surgical resection or destruction of endometriosis to achieve pain control and hormonal suppression of the disease, and to minimize progression. In our practice, oral contraceptive and GnRH agonists in selected cases are the first-line and the most widely used medical therapy for endometriosis.

Endometriosis, among teen-agers, is under diagnosed by gynaecologists. Adolescent patients typically present with progressive and severe dysmenorrhoea, but also may present with acyclic pelvic pain. Endometriosis should be strongly suspected in adolescent with chronic pelvic pain especially with no or low response to oral contraceptives and nonsteroidal anti-inflammatory medicine.

Treatment should focus on conservative measures with medical and surgical interventions. Laparoscopic approach is a valuable and effective procedure in the diagnosis and management of endometriosis in adolescent patients.

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