Case Report
Inflammatory bowel disease in pregnancy: a report of 7 cases and review of the literature

Yalan Xu1, Bei Tan2, Liangkun Ma1, Yijun Song1, Xiya Zhou1, Qingwei Qi1, Juntao Liu2

Departments of 1Obstetrics and Gynecology, 2Gastroenterology, Peking Union Medical College Hospital, Peking Union Medical College, Chinese Academy of Medical Sciences, Beijing 100730, China

Received July 13, 2016; Accepted September 2, 2016; Epub March 15, 2017; Published March 30, 2017

Abstract: Objective: To explore the clinical manifestations of inflammatory bowel disease (IBD) in pregnancy. Methods: The clinical manifestations, therapy and turnover of 7 cases with IBD in pregnancy admitted in our hospital from 2000 to 2014 were analyzed, and related literature was reviewed. Results: Two cases were primary onset at early pregnancy, and 5 cases were of chronic recurrence. One patient showed acute onset at a gestational age of 14 weeks, and subject to induced labor at 19th week of pregnancy, followed by surgical treatment due to digestive tract bleeding. The other 6 cases showed a good outcome after close follow-up and standard treatment. Three patients received colonoscopy with satisfactory tolerance, and no adverse reaction was noticed. One patient received infliximab regularly during pregnancy until lactation, and no recurrence was observed. One patient did not receive vaginal delivery because of a surgical history of anal fistula. One patient had to receive induced labor in the second trimester. The delivery modes of the other 5 cases were in accordance with obstetric indications. Conclusion: Appropriate management of IBD before and during pregnancy in a timely and effective manner is crucial for the pregnancy of IBD patients.

Keywords: Pregnancy, breastfeeding, inflammatory bowel disease, therapy

Introduction
Inflammatory bowel disease (IBD), mainly includes ulcerative colitis (UC) and Crohn’s disease (CD), affects women in their reproductive years [1-3]. Besides, a higher incidence of IBD is reported in patients after conception [1, 4], which may result in increased incidence of congenital anomalies, prematurity, caesarean section and low birth weight [5-8]. Thus, the effects of disease complications, disease activity and medications on pregnancy and fertility are of key concern to IBD patients [9].

In the past, women with IBD may choose to avoid pregnancy or discontinue medications due to their concerns [4, 10]. However, studies indicated the advantages of maintaining remission before and during pregnancy outweighs the risks of disease flares and related side-effects on the pregnancy outcome [9]. In addition, most of the drugs for the treatment of IBD are safe during pregnancy, and progression in the medical treatment allowed more women with IBD to enter symptomatic remission [4]. Traces of drugs were detected in breast milk of women received drug therapy, but no major complications for neonates or fetus have been found [4]. Thus, analyzing the clinical manifestations, therapy and outcome of IBD patients during pregnancy is very important for the prognosis.

In our study, the clinical manifestations, therapy and outcome of 7 cases with IBD in pregnancy admitted in our hospital from 2000 to 2014 were analyzed, and related literatures were reviewed. Our study showed that appropriate management of IBD before and during pregnancy in a timely and effective manner is crucial for the pregnancy of IBD patients.

Materials and methods

Patients

The clinical data of 7 cases (age of onset: 24-31 yrs, averaged age: 27.9 yrs) with IBD in preg-
Inflammatory bowel disease in pregnancy

Methods

The general conditions, clinical manifestations, therapy, pregnancy outcome and prognosis of 7 cases were analyzed, and related literature was reviewed. The diagnosis of IBD was carried out according to the previous description [11]. The severity of IBD was categorized according to the endoscope score. The activity of UC was evaluated according to the Mayo endoscopic subscore system [12]: 0 score, normal or no active lesions; 1 score, mild conditions (e.g. slight erythema, decrease of vascular lake); 2 score, moderate conditions (e.g. obvious erythema, lack of vascular lake, erosion); and 3 score, severe conditions (spontaneous bleeding and formation of ulcer). Also, UC activity was evaluated according to the Truelove-Witts score system in clinical practice. The patient conditions were divided into three groups according to the frequency of diarrhea, presence of bloody stool, body temperature, pulse, hemoglobin and erythrocyte sedimentation rate. The CD activity index (CDAI) was evaluated according to the previous description. The conditions were divided into five categories, including response period (<150 score), active period (≥150 score), mild severity (150-219 score), moderate severity (225-450 score), and severe conditions (<450 score).

Results

General conditions and clinical data

The course of disease ranged from 1 month to 11 years (Table 1). Among these patients, 2 cases were primary onset at early pregnancy,

Table 1. General conditions and clinical data of 7 cases in pregnancy

<table>
<thead>
<tr>
<th>Case</th>
<th>Age</th>
<th>Diagnosis</th>
<th>Clinical stage</th>
<th>Affected site(s)</th>
<th>Clinical manifestation</th>
<th>Time of final diagnosis</th>
<th>Course of disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>34</td>
<td>UC</td>
<td>Chronic recurrent</td>
<td>Whole colon</td>
<td>Diarrhea, bloody purulent stool, fever</td>
<td>Progestation</td>
<td>10 years</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
<td>CD</td>
<td>Chronic recurrent</td>
<td>Whole colon, ileum, terminal ileum</td>
<td>Diarrhea, abdominal pain, bloody purulent stool, fever</td>
<td>Progestation</td>
<td>4 years</td>
</tr>
<tr>
<td>3</td>
<td>30</td>
<td>UC</td>
<td>Primary onset</td>
<td>Whole colon, rectum</td>
<td>Bloody purulent stool, fever</td>
<td>14th week of pregnancy</td>
<td>1 month</td>
</tr>
<tr>
<td>4</td>
<td>32</td>
<td>UC</td>
<td>Primary onset</td>
<td>Sigmoid colon, rectum</td>
<td>Diarrhea, abdominal pain, bloody purulent stool, fever</td>
<td>9th week of pregnancy</td>
<td>2 month</td>
</tr>
<tr>
<td>5</td>
<td>37</td>
<td>CD</td>
<td>Chronic recurrent</td>
<td>Whole colon, rectum, ileum</td>
<td>Diarrhea, abdominal pain, crissum polyrrhea, difficult defecation</td>
<td>Progestation</td>
<td>11 years</td>
</tr>
<tr>
<td>6</td>
<td>29</td>
<td>UC</td>
<td>Chronic recurrent</td>
<td>Left hemicolon, rectum</td>
<td>Diarrhea, abdominal pain, bloody purulent stool, hematochezia</td>
<td>Progestation</td>
<td>2 years</td>
</tr>
<tr>
<td>7</td>
<td>32</td>
<td>UC</td>
<td>Chronic recurrent</td>
<td>Sigmoid colon, rectum</td>
<td>Diarrhea, bloody purulent stool, fever</td>
<td>Progestation</td>
<td>1 year</td>
</tr>
</tbody>
</table>

nancy admitted in Peking Union Medical College Hospital from January 2000 to December 2014 were obtained, and related literature was reviewed. The case history, clinical symptoms, laboratory examination, results of colonoscopy and biopsy, therapy, pregnancy outcome and follow up were recorded for each patient. Written informed consent was obtained from each patient. This study was approved by the Ethical Committee of Peking Union Medical College Hospital.
Inflammatory bowel disease in pregnancy

Among which one patient showed acute onset at a gestational age of 14 weeks, while the other showed onset at a gestational age of 9 weeks. The other 5 cases were of chronic recurrence with a frequency of 1 to 5 times. The main clinical manifestations of the 7 cases were diarrhea, abdominal pain, bloody stool and fever. The enteroscopy findings were as follows: patients with UC showed diffuse inflammation in mucous membrane, multiple ulcer, erosion and pseudopolyp; patients with CD showed noncontinuous changes or segmental changes, inflammation, slabstone like hyperplasia, and microtubule ulceration. The pathological findings of patients with UC were featured by inflammation in mucous layer and submucosa, and crypt abscess, while patients with CD showed segmental inflammation, and non-caseous necrosis granuloma.

Nutritional state in pregnancy

Among these patients, body mass index (BMI) before pregnancy in 2 cases were <18.5, another 5 cases had normal BMI. All the 7 cases had hypoproteinemia and iron deficiency anemia during pregnancy, of which 2 showed severe anemia, 4 with moderate anemia, and 1 with light anemia. All the 7 cases had no folacin and vitamin B12 deficiency (Table 2).

Morbid state before pregnancy and therapy of IBD during pregnancy

Among the 7 cases, 5 were of chronic recurrence, and disease assessment was performed prior to conception. Pregnancy was prepared once the conditions were relieved. One patient terminated the medication upon pregnancy, and relapse was reported by the patient at a gestational age of 19 weeks featured by diarrhea, bloody purulent stool and hyperpyrexia.

The conditions were severe according to the Truelove-Witts score. This patient received enteroscopy at a gestational age of 23 weeks, and the Mayoscore was 3. Hormone and biological therapy were refused by the patient. On this occasion, oral administration of mesalazine and enema therapy were used, and the disease was effectively controlled. The patient determined the medication during the lactation, and the disease relapsed 2 months after delivery, the disease was relieved after received sufficient hormone and mesalazine. The disease of the other 4 cases were controlled after close follow-up and standard treatment. Among the 4 patients, one received infliximab regularly during pregnancy until lactation, and no recurrence was observed (Table 3).

Among these patients, 2 cases were primary onset at early pregnancy. One patient showed acute onset at a gestational age of 14 weeks featured by bloody purulent stool and fever. This patient received enteroscopy a gestational age of 18 weeks, and was finally diagnosed with UC. She chose to receive induced-labor at a gestational age of 19 weeks. Afterwards, the patient showed progression of the disease, manifested as digestive tract bleeding and hemorrhagic shock. For the treatment, colonic branch embolization, fistula of ileum and pancolectomy under laparoscope were given. Enteroscopy findings in the recent 2 months indicated: inflammatory exudate, mucosal erosion, and crypt abscess. The Mayo score was 2. She received mesalazine and methylprednisolone and was advised to prepare for pregnancy after disease remission. The other patient showed onset at a gestational age of 9 weeks, and was diagnosed with UC through enteroscopy performed at a gestational age of 19 weeks. The patient showed complete response

Table 2. Nutritional state of 7 cases with IBD in pregnancy

<table>
<thead>
<tr>
<th>Case</th>
<th>Body mass index before pregnancy (BMI&gt;18.5)</th>
<th>Hemoglobin (&gt;110 g/L)</th>
<th>Serum albumin (35-55 g/L)</th>
<th>Serum iron (70-150 μg/dl)</th>
<th>Total iron binding capacity (200-400 μg/dl)</th>
<th>Transferrin saturation (25-35%)</th>
<th>Ferritin (14-336 ng/ml)</th>
<th>Folacin (&gt;3 pg/ml)</th>
<th>Vitamin B12 (180-914 ng/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18.3</td>
<td>66-101</td>
<td>29-32</td>
<td>62</td>
<td>209</td>
<td>30</td>
<td>80</td>
<td>10</td>
<td>898</td>
</tr>
<tr>
<td>2</td>
<td>20.1</td>
<td>78-108</td>
<td>31-35</td>
<td>65</td>
<td>215</td>
<td>32</td>
<td>94</td>
<td>17</td>
<td>765</td>
</tr>
<tr>
<td>3</td>
<td>19.5</td>
<td>44-89</td>
<td>26-31</td>
<td>58</td>
<td>178</td>
<td>37</td>
<td>119</td>
<td>26</td>
<td>259</td>
</tr>
<tr>
<td>4</td>
<td>23.5</td>
<td>93-105</td>
<td>29-35</td>
<td>60</td>
<td>194</td>
<td>35</td>
<td>248</td>
<td>22</td>
<td>710</td>
</tr>
<tr>
<td>5</td>
<td>18.4</td>
<td>87-112</td>
<td>30-39</td>
<td>51</td>
<td>169</td>
<td>28</td>
<td>235</td>
<td>19</td>
<td>332</td>
</tr>
<tr>
<td>6</td>
<td>21.2</td>
<td>89-108</td>
<td>30-34</td>
<td>54</td>
<td>188</td>
<td>31</td>
<td>228</td>
<td>21</td>
<td>376</td>
</tr>
<tr>
<td>7</td>
<td>19.8</td>
<td>54-79</td>
<td>24-28</td>
<td>28</td>
<td>190</td>
<td>14</td>
<td>44</td>
<td>7</td>
<td>296</td>
</tr>
</tbody>
</table>
### Table 3. Morbid state before pregnancy, medical treatment and surgical treatment for patients with IBD during pregnancy

<table>
<thead>
<tr>
<th>Case</th>
<th>Disease assessment before pregnancy</th>
<th>Receiving operation or not before pregnancy</th>
<th>Morbid state during pregnancy</th>
<th>Medical treatment during pregnancy</th>
<th>Effect of medical treatment</th>
<th>Receiving operation or not during pregnancy</th>
<th>Postpartum recurrence or not</th>
<th>Recent treatment</th>
<th>Recent disease control</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Remission</td>
<td>Not</td>
<td>Controlled</td>
<td>Blood transfusion, mesalazine, methylprednisolone, sulfasalazine</td>
<td>Satisfaction</td>
<td>Not</td>
<td>Not</td>
<td>Mesalazine Hormone</td>
<td>Remission</td>
</tr>
<tr>
<td>2</td>
<td>Remission</td>
<td>Anal fistulectomy</td>
<td>Controlled</td>
<td>Mesalazine</td>
<td>Satisfaction</td>
<td>Not</td>
<td>Not</td>
<td>Mesalazine Hormone</td>
<td>Remission</td>
</tr>
<tr>
<td>3</td>
<td>Primary onset at 14th week of pregnancy</td>
<td>Not</td>
<td>Lower gastrointestinal hemorrhage, hemorraghic shock</td>
<td>Received enteroscopy at 18th week of pregnancy, UC was final diagnosed, received mesalazine and sufficient hormone after induced labor</td>
<td>Poor</td>
<td>Selective embolization of the colon, Laparoscopic ileum stoma, total colon resection under laparoscope</td>
<td>Not</td>
<td>Mesalazine Enema, oral hormone</td>
<td>Active</td>
</tr>
<tr>
<td>4</td>
<td>Primary onset at 9th week of pregnancy</td>
<td>Not</td>
<td>Active</td>
<td>Received enteroscopy at 19th week of pregnancy, UC was final diagnosed, received mesalazine and sulfasalazine</td>
<td>Satisfaction</td>
<td>Not</td>
<td>Not</td>
<td>Mesalazine Hormone</td>
<td>Remission</td>
</tr>
<tr>
<td>5</td>
<td>Remission</td>
<td>Not</td>
<td>Remission</td>
<td>Received infliximab regularly</td>
<td>Satisfaction</td>
<td>Not</td>
<td>Not</td>
<td>Infliximab</td>
<td>Remission</td>
</tr>
<tr>
<td>6</td>
<td>Remission</td>
<td>Not</td>
<td>Remission</td>
<td>Mesalazine</td>
<td>Satisfaction</td>
<td>Not</td>
<td>Not</td>
<td>Mesalazine Hormone</td>
<td>Remission</td>
</tr>
<tr>
<td>7</td>
<td>Remission</td>
<td>Not</td>
<td>Self drug discontinuation after gravity, and the disease progressed</td>
<td>Received enteroscopy at 23 h week of pregnancy, moderate active was assessed, received blood transfusion, anti-infection, Hormone and biological preparation was advised, the patients refused, they received mesalazine</td>
<td>Effective</td>
<td>Not</td>
<td>Not</td>
<td>Mesalazine Enema, oral hormone</td>
<td>Remission</td>
</tr>
</tbody>
</table>

### Table 4. Treatment, pregnancy outcome and prognosis for patients with IBD during pregnancy

<table>
<thead>
<tr>
<th>Case</th>
<th>Adverse reaction during pregnancy</th>
<th>Treatment</th>
<th>Mode of delivery</th>
<th>Body weight of neonatus (g)</th>
<th>Body length of neonatus (cm)</th>
<th>Apgar score of neonatus</th>
<th>Lactation</th>
<th>Growth and development of neonatus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Severe anemia, hypoproteineinemia, aura late abortion, threatened premature labor</td>
<td>Blood transfusion, iron supplement, nutritional support, fetal heart monitoring, promoting fetal lung maturation</td>
<td>Cesarean section</td>
<td>2110 (SGA)</td>
<td>45</td>
<td>1' 10</td>
<td>5' 10</td>
<td>Artificial feeding</td>
</tr>
<tr>
<td>2</td>
<td>Moderate anemia, hypoproteinemia</td>
<td>Iron supplement, nutritional support, maternal and child care</td>
<td>Cesarean section</td>
<td>2640</td>
<td>48</td>
<td>1' 10</td>
<td>5' 10</td>
<td>Artificial feeding</td>
</tr>
<tr>
<td>3</td>
<td>Primary UC, metachase induced labor, hypoproteinemia</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>4</td>
<td>Primary UC, mild anemia, hypoproteinemia</td>
<td>Iron supplement, nutritional support, maternal and child care</td>
<td>Vaginal delivery</td>
<td>3050</td>
<td>50</td>
<td>1' 10</td>
<td>5' 10</td>
<td>Breastfeeding for 10 months</td>
</tr>
<tr>
<td>5</td>
<td>Moderate anemia, hypoproteinemia</td>
<td>Iron supplement, nutritional support, maternal and child care</td>
<td>Cesarean section</td>
<td>3200</td>
<td>50</td>
<td>1' 10</td>
<td>5' 10</td>
<td>Artificial feeding</td>
</tr>
<tr>
<td>6</td>
<td>Moderate anemia, hypoproteinemia</td>
<td>Iron supplement, nutritional support, maternal and child care</td>
<td>Cesarean section</td>
<td>3100</td>
<td>49</td>
<td>1' 10</td>
<td>5' 10</td>
<td>Artificial feeding</td>
</tr>
<tr>
<td>7</td>
<td>Severe anemia, hypoproteinemia</td>
<td>Blood transfusion, iron supplement, nutritional support, maternal and child care</td>
<td>Vaginal delivery</td>
<td>3980</td>
<td>51</td>
<td>1' 10</td>
<td>5' 10</td>
<td>Breastfeeding for 2 months, stopping breastfeeding due to recurrence</td>
</tr>
</tbody>
</table>

Note: FGR: fetal growth restriction; SGA: small for gestation age infant.
after medication of mesalazine and sulfasalazine, and no recurrence was observed after delivery. Among the 7 cases, 3 received colonoscopy with satisfactory tolerance, and no adverse reaction was noticed.

Treatment, pregnancy outcome and prognosis

All the 7 cases had hypoproteinemia, among which 2 received blood transfusion during pregnancy due to severe anemia. The other 5 cases had mild or moderate anemia, and iron supplement and nutritional support were given accordingly. One patient received oxygen inhalation, inhibition of uterine contraction, and promoting fetal lung maturation due to advanced threatened abortion a gestational age of 26 weeks, and threatened premature labor a gestational age of 33 weeks. One patient chose cesarean delivery because of a surgical history of anal fistula. The delivery modes of the other 5 cases were in accordance with obstetric indications. One newborn was small for gestational age (SGA), and the other 5 were showed normal body weight and height. The growth and development of 6 cases were normal after one year follow up. Two patients chose breast-feeding, and four chose artificial feeding due to the fear of drug effects (Table 4).

Discussion

Genetic or environmental factors (such as diet, smoking and life style) play an important role in the pathogenesis of IBD [13-16]. Compared with northern Europe, USA and other Westernized countries, the incidence of IBD are much lower in Asia [17, 18]. However, its incidence have increased in some Asian countries in recent years [13]. In China, more and more IBD cases have been reported in the recent years, and the increased incidence might be due to the environmental and/or genetic factors [14, 19]. The activity of IBD could affect pregnancy outcome, the pregnancy outcome could also lead to the recurrence and aggravation of IBD [4]. Thus, treatment and diagnosis of IBD patients during pregnancy is very important.

Colonoscopy play a central role in the diagnosis and therapy of IBD [20]. While safety of colonoscopy during pregnancy remained controversial [21]. About 20,000 females annually experience safe colonoscopy during pregnancy worldwide [21]. Generally, colonoscopy are considered to be safe during pregnancy with no evidence of adverse outcome, however, it should be reserved for strong indications and should be done in the second trimester whenever possible [22, 23]. To avoid vena cava compression, pregnant patients should be placed in left lateral position before, during and after colonoscopy [22]. In our study, three patients received colonoscopy at a gestational age of 18, 19 and 23 weeks respectively, with satisfactory tolerance, and no adverse reaction was noticed.

Pregnancy might affect the natural course of IBD, and the primary onset at pregnancy is usually severe and life-threatening [22, 24]. Abramson et al. reported that in 5 primary onset UC cases during pregnancy, in which 4 died of outbreak of disease after delivery or abortion [24]. In our study, 2 cases were primary onset at early pregnancy. One patient received enteroscopy at a gestational age of 18 weeks, and was diagnosed with severe UC. Then, the patient subjected to induced labor at a gestational age of 19 weeks, followed by pancolectomy due to digestive tract bleeding and hemorrhagic shock. In contrast, the other patient with UC received mesalazine and sulfasalazine showed complete response after treatment, and no recurrence was observed. The difference of outcome in the two patients may be related to the the deterioration of UC by induced labor.

Breastfeeding has many beneficial effects on child health, and it is recommended as the primary nutrition form for infants [25]. Studies showed that breastfeeding could not increase the risk of IBD flare and may even has a protective effect against disease relapse in the post-partum period [26, 27]. Kane et al. reported an increased rate of disease flare in women who breastfed, which was attributed to discontinuation of medication [28]. In our study, one patient were self drug discontinuance after gravidity, and the disease relapsed at 19th week of pregnancy. The disease in the other 4 cases were controlled after close follow-up and standard treatment.

Women with IBD could increase the risk of adverse pregnancy outcome, which depended on the disease severity [22]. In our study, one newborn was SGA, and the remaining 5 were of normal gestational age. The growth and development of 6 cases were normal after one year
follow up. Our results may be related with the small cases.

The treatment of IBD during pregnancy includes nutritional support, medication and surgery [22]. Acute flares during pregnancy has a high risk of adverse outcome, and appropriate treatment should be performed in those patients. Most drugs used for the treatment of IBD is low risk during pregnancy, while thalidomide and methotrexate are contraindicated. Nutritional deficiencies such as vitamin B12, folate, vitamin D and iron should be evaluated and treated as required. Surgery is required in approximately 70-80% of patients with CD and 30-40% of patients with UC [29-31]. Surgery is relatively safe but there is some limitations such as spontaneous abortion when operation in the first trimester and preterm labor in the third trimester [30]. Surgical procedures included hemicolecotomy, proctocolectomy, ileostomy, and segmental resection. To our best knowledge, the choice of surgery is depend on the age, nutrition and disease conditions, complications, as well as the length of mesoleum and blood vessel distribution. Currently, the ileostomy is generally preferred after primary anastomosis, to decrease the risk of postoperative complications [22].

The mode of delivery should primarily be dictated by obstetric indications, but it should be combined with the colorectal surgeon to avoid the post partum sphincter impairment [22, 32, 33]. Most patients with IBD can deliver vaginally, but caesarean section should be performed if the obstetric risk is increased for other reasons [22, 34]. Indications for caesarean section are in patients with active perineal disease or in cases after ileal pouch anal anastomosis (IPAA) [35-37], which could avoid the risk of anal sphincter injury or worsening of perianal disease [38]. In our study, one patient selected caesarean section because of the risk of anal sphincter damage. The delivery modes of the other 5 cases were in accordance with obstetric indications.

In conclusion, the activity of IBD could affect pregnancy outcome, the pregnancy outcome could also lead to the recurrence and progression of IBD. Colonoscopy are considered to be safe during pregnancy with no evidence of adverse events. Most patients with IBD can deliver vaginally, but caesarean section should be performed in patients with active perineal disease or in cases after IPAA.

Acknowledgements

This study was supported by the National Natural Scientific Foundation (No. 81270717, and No. 81490743).

Disclosure of conflict of interest

None.

Authors' contribution

Xu Y wrote the manuscript; Tian B, Ma L, and Qian J did the data collection; Song Y, Zhou X and Qi Q did the data analysis; Liu J revised the manuscript.

Address correspondence to: Dr. Juntao Liu, Department of Obstetrics and Gynecology, Peking Union Medical College Hospital, Peking Union Medical College, Chinese Academy of Medical Sciences, No. 1, Shuaifu Garden, Dongcheng District, Beijing 100730, China. Tel: +86-10-6529-6228; E-mail: tao_auil@hotmail.com

References

Inflammatory bowel disease in pregnancy


[34] Wax JR, Pinette MG, Cartin A and Blackstone J. Female reproductive health after ileal pouch...