CASE REPORT

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Late Diagnosis of Bladder Injury During Cesarean Section

Geç Tanı Konulan Sezaryen Mesane Yaralanması Olgusu

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Abstract

Intraoperative bladder injury in cesarean deliveries is an important complication that causes maternal morbidity. Bladder adhesions resulting from previous abdominal operations, cesarean section under emergency conditions, cesarean section after prolonged labor or in the second stage of labor are predisposing factors for bladder injury. In order to prevent bladder injury, it is important to be aware of bladder injury during peritoneal incision in risky cases, delivery of the baby, and hysterotomy and fascia closure. In this article, we present the diagnosis and treatment of a patient who was diagnosed with intraperitoneal bladder perforation, intra-abdominal abscess and peritonitis one week after cesarean section, in the light of current literature. In our case, intraoperative diagnosis could not be made, postoperative active hematuria was not observed, the focus was on the diagnosis of postoperative ileus, and intra-abdominal abscesses developed. A multidisciplinary team ensured success in the treatment.

Keywords: Abdominal abscesses, bladder injury, cesarean

Öz

Sezaryen doğumlarda intraoperatif mesane yaralanması maternal morbiditeye neden olan önemli bir komplikasyondur. Daha önce geçirilen batın operasyonlarından kaynaklanan mesane yapışıklıkları, acil şartlarda sezaryen yapma, uzamış doğum eylemi sonrası veya doğumun ikinci evresinde sezaryen uygulama, mesane yaralanması için predispozan faktörlerdir. Mesane yaralanmasını önlemek için riskli olgularda peritoneal insizyon yapılmasında, bebeğin doğumunda, histerotomi ve fasya kapanması sırasında mesane yaralanması farkındalığının olması önemlidir. Bu yazıda, sezaryenden bir hafta sonra intraperitoneal mesane perforasyonu, batın içi apse ve peritonit tanısı almış bir hastanın tanı ve tedavisini, güncel literatür eşliğinde sunuyoruz. Olgumuzda intraoperatif tanı konulamamış, postop aktif hematüri gözlenmemiş, postop ileus tanısı üzerine yoğunlaşılmış ve bu süreçte hastada batın içi apseler gelişmiştir. Operasyondan bir hafta sonra akut batın tablosuyla yatırılan hastanın preop-postop yönetiminde kadın doğum, genel cerrahi, üroloji, radyoloji, enfeksiyon hastalıkları, anestezi hekimlerinden oluşan multidisipliner ekip çalışması yapılmış olmasıyla tedavide başarılı olunmasını sağlanmıştır.

Anahtar kelimeler: Batın apseleri, mesane yaralanması, sezaryen

Introduction

Intraoperative bladder injury during cesarean delivery is an important complication that causes maternal morbidity. Bladder injury is approximately 0.2% during primary cesarean section and 0.6% during repeat cesarean section (1). Today, in increasing number of cases of placenta accreta spectrum (PAS), bladder injury is seen as 11.7% (2). Especially in risky cases, it should be carefully checked that there are no visceral structures around it when making a peritoneal incision. It is important to be aware of bladder injury during the delivery of the baby, repair of hysterotomy, creation of bladder flaps, and fascia closure. In suspicious cases, it is appropriate to check whether there is fluid leakage by performing retrograde bladder filling. The rate of return to normal urological functions is high in cases diagnosed and repaired intraoperatively. We aimed to discuss the diagnosis and treatment of a patient who was diagnosed with intraperitoneal bladder perforation, intra-

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abdominal abscess, and peritonitis 1 week after cesarean section, with regard to the current literature.

Case Report

It was learned from the history of a 32-year-old patient who had a previous cesarean section, that she gave birth by planned cesarean section 1 week ago in an external hospital, and that there was no macroscopic hematuria after delivery, and the catheter remained for 2 days. Pre-diagnosis was ileus for the patient whose abdominal pain complaints increased after catheter removal and the catheter was re-administered for 1 day. The patient, who had gaseous stool discharge, applied to our general surgery clinic 2 days after discharge, with the complaints of abdominal pain, vomiting and fever. On examination, the abdomen was tense and defensive. Gas stool output and spontaneous urine output were decreased. Vital parameters and laboratory results were as fever: 37.8, TA: 154/88, heart rate: 115 beat/min, SpO_2: 97, C-reactive protein: 161 mg/L, leuk: 10,400/mcL, hemoglobin: 12.6 g/dL, procalcitonin: 0.26 ng/mL, creatinine 0.99 mg/dL. Oral/intravenous (IV)/rectal contrast-enhanced upper abdomen and pelvic computed tomography (CT) results showed intense free acid containing free air in the abdomen, thickening of the peritoneal wall and suspected iatrogenic bladder wall damage (Figures 1, 2). She was urgently referred to our urology clinic with a preliminary diagnosis of intraperitoneal bladder perforation.

The decision of laparotomy was made. In the abdominal exploration, the entire abdomen was in abscess formation up to the liver and subspleen superiorly, and the Douglas cavity inferiorly (Figure 3). 2.300 cc of pus was drained. The uterine incision site was intact and regular. It was observed that the bladder was perforated 8 cm transversely from the dome in the inferoanterior of the uterus, the trigone and bilateral ureter and orifice regions were intact and there was no pathology. The perforation line was debrided and sutured continuously from mucosa to mucosa with 3/0 vicryl. The seromuscular 2nd layer was closed with 2/0 vicryl. The bladder was filled with 300 cc saline (SF) and tested. The general surgery consultation was needed peroperatively. The abscess areas were washed with SF, adhesiolysis was performed and drains were placed in 3 separate areas (subhepatic, subsplenic and retzius). Antibiotic (piperacillin + tazobactam) treatment was started. Foley catheter was kept for 10 days. Control retrograde cystography was performed on the 10th day for the patient who had no postoperative problems (Figure 4). No complication is observed.

Discussion

Knowledge of risk factors, increasing awareness of symptoms and planning their management are crucial to reduce the potential morbidity rate in this patient population. The most important risk factor for bladder injury in cesarean delivery is bladder adhesions resulting from previous abdominal operations (3,4). The incidence of bladder injury is 3 to 9 times higher in cases who have

Figure 1. Bladder anterior perforation

Figure 2. Subhepatic subsplenic abscess area

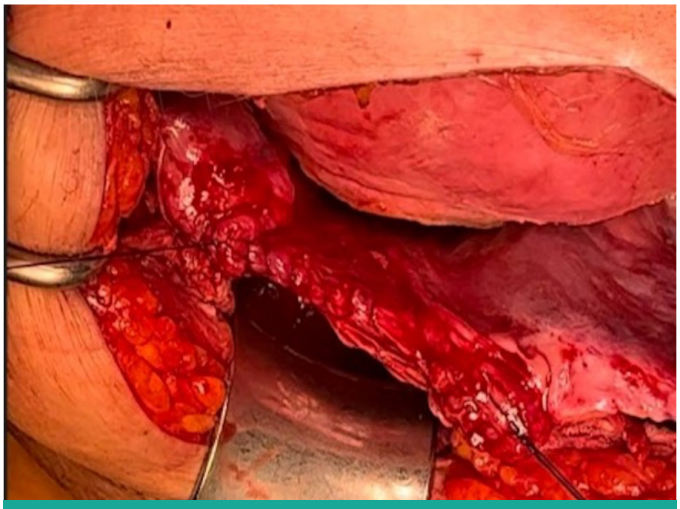

Figure 3. Intraoperative view

Figure 4. Cystogram image on postoperative day 19

given birth by cesarean section before (3). These rates were given as 0.09% for the second cesarean section, 0.28% for the third cesarean section, 1.17% for the fourth cesarean section, 1.94% for the fifth cesarean section, and 4.49% for the sixth cesarean section (5). In primary cesarean sections, giving birth by cesarean section in the second stage of labor (full cervical dilatation), having a cesarean section after a failed vacuum extraction attempt, and having an emergency cesarean section are the factors that increase the risk of bladder injury (6). Displacement or delivery of a baby entering the pelvis may cause surgical trauma around the bladder (7). Bladder injuries during cesarean section occur in 95% bladder domes, 5% in trigone region and average 1-10 cm in length. It has been shown that 43% of the injuries occur during the creation of the bladder flap, 33% during the opening of the peritoneal cavity, 24% during the uterine incision or after the lateral extension of the uterine incision (4). In our case, the length of the bladder injury was 8 cm transversely from the dome, suggesting that it was during the creation of the bladder flap or due to the traumatic effect of the retraction instruments. It should be checked that there are no visceral structures around the incision during the opening of the peritoneum or uterine incision while entering the abdominal cavity. In cases with dense adhesion, a sharp dissection should be preferred instead of a blunt dissection of the bladder with gauze (8). In morbidly adherent PAS cases, filling the bladder with 200 mL of saline before cesarean section will reduce bladder damage (9). Increasing awareness of the risk of intraoperative bladder injury, presence of urine leakage in the operation area, presence of foley catheter balloon, and detrusor muscle rupture allow us to diagnose. Hematuria may be present in 95% of the cases (10). If injury is suspected, retrograde bladder filling is performed via the Foley catheter. 62% of the injuries are detected during the delivery of the baby and repair of the hysterotomy, 21% during the creation of bladder flaps, 12% at the entrance to the peritoneal cavity, and 5% before the fascia is closed (3). As in our case, bladder dome injuries can usually be repaired with two or three-layer closure (8,11). After the repair, the retrograde bladder is filled with at least 300 mL of methylene blue or SF, and the integrity of the bladder is checked. Postop foley catheter is kept for 7-14 days. A closed suction drain can be kept in the perivesical space and pelvis to control urine leakage (12). Hematuria, oligouria, lower abdominal pain, ileus, ascites, peritonitis, sepsis, fistula, and increased urea nitrogen/creatinine ratio in the blood may suggest bladder injury, which may occur in the early postoperative period (13). Retrograde cystography is a useful diagnostic procedure for postoperative patients with suspected urological injury. Abdominal CT with cystography has a high diagnostic value in cases of acute abdomen. Diagnostic laparotomy should always be considered if intraperitoneal bladder injury is suspected (13). In our case, the absence of postoperative active hematuria, the insertion of an intermittent catheter, the fact that only a standing direct abdominal X-ray was taken in the early period, the focus on the diagnosis of ileus with surgical consultation, and the failure to consult the urology caused a delay in the diagnosis of actual bladder injury. Hence, intra-abdominal abscesses are developed. After the presence of acute abdomen 1 week after the operation, the diagnosis was made by performing upper abdomen and pelvic CT with oral/IV/rectal contrast. Multidisciplinary team has ensured success in the treatment.

Ethics

Informed Consent: The patient is informed about the publication process by the informed consent and written confirmation is provided to the journal.

Peer-review: Internally and externally peer-reviewed.

Authorship Contributions

Concept: G.P., Design: G.P., Data Collection or Processing: G.P., G.Ç., V.G., Analysis or Interpretation: G.P., T.A., Drafting Manuscript: G.P., T.A., G.Ç., V.G., Critical Revision of Manuscript: T.A., Final Approval and Accountability: G.P., T.A., G.Ç., V.G., Supervision: T.A., Technical or Material Support: G.P., G.Ç., V.G., Writing: G.P., T.A., G.Ç., V.G.

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