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Case Report: Splenic Rupture Post-Caesarean Section

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Abstract

A 28 years old Female, G6 P4+1 Previous 1 CS, 37 weeks, twins' pregnancy, was planned for Caesarian section (CS) on 26/1/2025. **Background:** G6 P4+1 Previous 1 CS, 37 weeks, twins' pregnancy. No past medical history. **Aim:** We present and discuss a case of Splenic Rupture Post-Caesarean Section from all sides; clinically, and surgically, to detect all correlating items for learning and for possible prevention of such cases. **Case in Future Presentation:** On 26/1/2025, under spinal anesthesia, Caesarian section (CS) was completed at 12:30 PM without any complication. On 26/1/2025, at 22:30, the patient complained acute chest pain and difficulty in breathing, given bronchodilator nebulizer, with oxygen through facial mask. On 26/1/2025, at 22:55, the patient condition deteriorated; hypotension, tachycardia with dropping of hemoglobin from 10 to 6.7 gram/dl, shifted to operation room for exploration. Exploratory laparotomy showed active bleeding from a partially avulsed splenic hilum area. Splenectomy was done and hemostasis secured. The patient was shifted to ICU after the second operation for close monitoring, and ICU care, kept in ICU for 2 days, then shifted back to OBW on 28/01/2025 after good stabilization of her condition. On 04/02/2025, the patient was discharged home in a stable condition. **Spleen Biopsy:** Histopathological features are consistent with splenic tissue showing vascular congestion and areas of hemorrhage. The findings rule out underlying pathology. **Conclusion:** This case underscores the importance of maintaining a high index of suspicion for abdominal complications post-delivery, even in the absence of traumatic or predisposing factors. Clinicians should be aware of such rare complications and consider them in differential diagnoses to ensure prompt and effective treatment.

Keywords

Pregnancy, Caesarean, Section, Splenectomy, Splenic Rupture

1. Introduction

The spleen is a delicate, fist-sized organ under left rib cage near stomach. It contains special white blood cells that destroy bacteria and help body fight infections. The spleen also makes red blood cells and helps remove, or filter, old ones from the body's circulation [1].

A layer of tissue entirely covers the spleen in a capsule-like fashion, except where veins and arteries enter the organ. This tissue, called the splenic capsule, helps protect the spleen from direct injury [1].

A ruptured spleen is an emergency medical condition that occurs when the capsule-like covering of the spleen breaks open, pouring blood into your abdominal area. Depending on the size of the rupture, a large amount of internal bleeding can occur [1].

1.1. Etiology and Mechanism of Splenic Rupture

The spleen can rupture when the abdomen suffers a severe direct blow or blunt trauma. The spleen is the most frequent organ to be damaged in blunt trauma injuries involving the abdomen.

Certain diseases and illnesses can also lead to a ruptured spleen. In such cases, the spleen becomes swollen and the capsule-like covering becomes thin. This makes the organ especially fragile and more likely to rupture if the abdomen receives a direct hit [1].

Diseases that increase the risk for a ruptured spleen include [1]: Infectious mononucleosis, blood (hematological) diseases such as hemolytic anemia and certain types of lymphoma, and Malaria.

Some authors consider that pregnancy per se is a risk factor for splenic rupture, explained by pregnancies' hypervolemia and alterations of the abdominal organs. This potentially lethal injury could occur with any degree of trauma to a normal spleen or a minor trauma to a diseased spleen and has been reported in patients with or without predisposing factors. In some cases, the mechanism of injury is unclear and multifactorial [2].

1.2. Types of Splenic Rupture

1.2.1. Spontaneous Splenic Rupture

It is labeled as spontaneous when it is not associated with antecedent trauma, systemic disease, or gross pathology and the parenchyma, the vasculature, and the capsule are normal. Rupture of a splenic artery aneurysm is another entity but is also a rare and life-threatening complication in pregnancy, with an incidence of 0.01% - 10.4% [2].

A spontaneous or non-traumatic splenic rupture is a rare occurrence in the setting of a healthy spleen during pregnancy [3]. It is defined to occur in the absence of any associated splenic trauma, systemic disease, and absent evidence related to splenic adhesions. Due to its nonspecific symptoms following delivery; the diagnosis is sometimes confusing and subsequently delayed, which can lead to adverse outcomes [3].

The background of our case which is G6 P4+1 Previous 1 CS, 37 weeks, twins' pregnancy may predispose to some traction on peritoneal attachments due to adhesions resulted from previous CS.

1.2.2. Iatrogenic Splenic Rupture Injury

It is defined as any involuntary damage caused to the spleen during an operation or a medical intervention. Intraoperative bleeding originating from the spleen is an extremely rare complication of caesarean section but could significantly increase the risk of maternal morbidity and mortality during or after childbirth. The reported maternal mortality from splenic rupture ranges between 0% and 45%, with a 47% - 82% risk of fetal wastage [2].

The lethal injury caused by splenic rupture could occur with any type of trauma, with or without predisposing factors. Trauma accounts for most cases, with motor vehicle collisions comprising 50% to 75% of mechanisms, followed by direct abdominal impact and falls [3]. However, the mechanism and cause of injury in some cases is multifactorial and unclear. Several authors have considered that pregnancy itself is a risk factor for splenic rupture, which is explained by hypovolemia and alteration in abdominal organs caused by pregnancy changes [4]. Another cause of splenic rupture is iatrogenic, which involves involuntary damage to the spleen during a surgical operation or intervention such as performing fundal pressure (Kristeller maneuver) during the second stage of labour [4].

Intraoperative bleeding originating from the spleen is an extremely rare complication following caesarean section operations although it can increase the risk of maternal mortality and morbidity significantly. Maternal mortality from splenic rupture is reported in a range between 0% and 45%. In this case report, we present a case of spontaneous splenic rupture and intrabdominal massive bleeding following a singleton spontaneous vaginal delivery [4].

2. Literature Review

2.1. Post Caesarean Section Complications Conundrum: Role of Imaging [5]

Although caesarean delivery is a safe procedure, however, with rising numbers being performed every year globally, increasing number of complications is being encountered by clinicians and radiologists. These complications can be *early*, occurring over first few days to weeks, or *late*, which can present months to years later. Also, it must be kept in mind that the normal variations of physiological involution occurring in early postpartum period can mimic pathology in many cases. Clinical history, laboratory parameters, and radiological investigations go

hand in hand in identifying acute complications at the earliest, enabling early initiation of treatment. Among radiological investigations, ultrasound is the first line investigation of choice, followed by computed tomography (CT) and magnetic resonance imaging (MRI) in certain conditions which will be described and illustrated further in this article.

Ultrasound is the baseline investigation of choice in imaging both early and late complications following caesarean delivery. Using a systematic checklist approach while doing the ultrasound, allows for a thorough assessment of the case. Red flag imaging findings in the early phase are large bladder flap hematoma and discontinuity of lower uterine segment suggesting uterine rupture, which warrants early laparotomy and uterine repair/hysterectomy.

A previous history of caesarean section should always be elicited while imaging a patient with chronic pelvic pain and irregular vaginal bleeding with a special focus on CS defect and abdominal wall endometriosis. Future pregnancy ultrasound scans should carefully evaluate CS scar and look for scar ectopic and adherent placenta.

2.2. Combined Caesarean Section and Splenectomy in a Patient with Massive Splenomegaly [6]

There is limited knowledge of patients with idiopathic splenomegaly in pregnancy. The documented cases of splenomegaly in pregnancy often have infectious etiology such as that of malarial infection or an autoimmune component such as idiopathic thrombocytopenic purpura. This condition is life-threatening and complicates medical management, but its rarity has led to a paucity of management guidelines for patients with idiopathic splenomegaly in pregnancy.

This case offers valuable insights into managing patients with idiopathic splenomegaly during pregnancy and underscores the need for further investigation. Establishing clear delivery indications for these patients remains crucial, and prospective studies should evaluate the long-term impacts on both mother and child following combined splenectomy and caesarean delivery in the context of Pancytopenia.

2.3. Splenic Rupture in an Elective Caesarean Section: A Possible Iatrogenic Event [2]

A rare case of an unexpected iatrogenic splenic rupture during a caesarean section is reported. The trauma was recognized early and treated conservatively without delay; thus, further complications were avoided. A 28-year-old woman with a history of previous caesarean sections was submitted for an elective caesarean section. Intra-operatively, minor bleeding from the left abdomen was noted and eventually assigned to an inferior pole splenic trauma treated conservatively without splenectomy. Although unclear, the injury was considered iatrogenic, probably due to the abdominal pressure for fetal delivery and the anatomy of the splenocolic ligament. This case highlights the clinical suspicion that is required despite routine surgical procedures for the early diagnosis of an unexpected splenic rup-

ture when minor bleeding occurs intra-operatively from the upper abdomen. Early recognition and prompt treatment are of paramount importance for the safety of the fetus and the patient.

This is believed to be the first report of iatrogenic splenic rupture during a caesarean section with maintenance of the spleen and a favourable outcome. This case highlights the clinical suspicion required when unexpected minor but continuous bleeding originating from the upper abdomen occurs, and this hemorrhage must not be ignored. Our patient recovered very well, and splenectomy was avoided because the bleeding was recognized promptly, she remained hemodynamically stable, and the injury was small.

2.4. Case Report: Splenectomy Due to Splenic Rupture after Caesarean Section [7]

Splenic rupture with high maternal mortality is an exceedingly rare complication after pregnancy. The diagnosis is often missed because of different diagnoses such as uterine rupture and abruption of placentae. This case of splenic rupture manifested post caesarean section and she was treated with laparotomy and Splenectomy.

Case**:** A 33 years old, gravida3, para 2, woman presented at 38 weeks of gestational age and gestational hypertension to Chabahar general hospital ,the patient was planned to do emergency caesarean section due to repeat caesarean section , 3 days after surgery, she was referred with dyspnea and oliguria .The patient was transferred to Imam Ali Hospital of Zahedan city for diagnosis and treatment because of low Hb and oliguria , the patient underwent re-laparotomy and acute spleen rupture was suspected ,surgery intervention performed Splenectomy. She had an uneventful recovery and was discharged 7days after Splenectomy. Conclusion**:** Splenic rupture in pregnancy is a life-threatening complication. Early diagnosis and surgical intervention will allow for optimal maternal outcome.

2.5. Splenectomy and Emergency Caesarean Delivery for Traumatic Splenic Rupture in a Patient in the Third Trimester of Pregnancy: A Case Report [8]

Splenic rupture is one of the most frequent trauma-related injuries in the general population. While splenic injury is uncommon in pregnant patients, trauma is the leading non-obstetric cause of maternal death and is associated with significant maternal and fetal morbidity and mortality. The most frequent and life-threatening cause of trauma in this population is road traffic accidents. This article describes the case of a 32-week-pregnant patient who was involved in a car accident. She sustained a grade V splenic injury and a grade III left kidney injury, according to the classifications of the American Association for the Surgery of Trauma (AAST). The patient underwent laparotomy, an emergency caesarean section, and splenectomy. The renal injury was treated conservatively. The fetus required intensive care immediately after birth. The diagnostic approach, even during preg-

nancy, must address not only the uterus but also other potential injuries, which may lead to severe hemorrhage, shock, and possible maternal and fetal death. A multidisciplinary approach is essential to ensure the best outcomes for both mother and fetus.

3. Current Case Presentation

3.1. Initial Assessment

On 26/1/2025: This is a-28 years-old female, was admitted in obstetrics & gynecology department in Qurayyat general hospital on 25/1/2025 through obstetrics & gynecology outpatient clinic as a case of G6 P4+ 1 Previous 1 CS, 37 weeks, twins pregnancy, LMP: 27/11/1445, EDD: 12/8/1446 GA +37 weeks. The patient was admitted for planned Caesarian section on 26/1/2025, informed surgical and anesthesia consents were secured and uploaded from the Ob-Gyne outpatient clinic.

Initial examination: Patient was stable hemodynamically. No previous medical history. Normal vital signs. Pre-operative laboratory investigations: low hemoglobin: 9.8 gram/dl, other investigations results were within normal limits. USG of abdomen showed twins pregnancy, both cephalic, both FCA + ve, BPD 37 weeks. FFL 35 w, PL F, LIQ N. Patient was prepared properly pre-operatively with follow up CTG.

3.2. Nursing Case Sequence Notes

3.2.1. Pre-First-Operative OBW Nursing Notes

1) On 26-01-2025

At 07:00 received patient on bed with IV line intact noted; a case of: G6 P4+1 previous 1 CS, 37 weeks, twins, for CS, RRT score: 0, NPO, IVF on-going, CTG done, patient is conscious and oriented, vitally stable, all prescribed medications and needs attended.

At 11:35 shifted to OR and endorsed to OR staff.

3.2.2. Post-First-Operative OBW Nursing Notes

1) On 26-01-205

At 13:06 received patient from OR staff by bed with IV line intact noted; a case of: post CS at 12:30 PM, SA with IFC, 20 units Oxytocin on-going, vitally stable, no complaint, no pain or bleeding.

2) On 27-01-2025

At 22:30 patient complained chest pain, vital signs were normal, all prescribed medications and needs attended.

At 22:40 vital check BP 103/59 PR 155/minute, spO2: 97% on 1litre Oxygen by face mask, managed by OB-Gyne and internal medicine teams, all prescribed medications and needs attended.

At 24:00, patient entered into hypovolemic shock, hypotension with tachycardia, given 2 units of packed RBC. Chest CT with pulmonary angio showed no pulmonary embolism.

At 02:25 shifted to ICU with tachycardia and hypotension.

3.2.3. Post-First-Operative ICU Nursing Notes

1) On 27-01-2025

At 02:27 received patient from OBW post-CS day 1, (37 week twins) on 26-01-2025 elective CS (G 6P4+1), on blood transfusion.

At 03:20 patient shifted to OR for exploratory laparotomy.

At 06:45 received patient from OR (post exploratory laparotomy splenectomy), on mechanical ventilation with cardiac monitoring, ICU care done.

At 08: 30 patient was put on CPAP.

At 09:30 patient was extubated, put patient on face mask.

At 10:30 remove face mask and keep patient on room air.

At 15:00 patient is fully conscious and oriented with GCS of 15/15, on room air.

2) On 28-01-2025

At 07:00 patient is post CS day 2, and post exploratory laparotomy splenectomy day 1, stable on room air, ICU care done, surgical wound care done, start liquid diet, with ambulation.

At 23:00 patient is stable on room air, ICU care done, surgical wound care done, all prescribed medications and needs attended.

At 02:30 patient shifted back to OBW.

3.2.4. Post-Second-Operative OBW Nursing Notes

1) On 28-01-2025

At 14:30 received patient from ICU staff, post CS day 2, and post exploratory laparotomy splenectomy day 1, fully conscious and oriented on room air, vitally stable, on liquid diet, no pain or bleeding, normal lochia, all prescribed medications and needs attended.

At 23:00 the patient is fully conscious and oriented on room air, vitally stable, no pain or bleeding, or any complaint, on liquid diet, normal lochia, all prescribed medications and needs attended.

2) On 29-01-2025

Collective nursing notes for morning, afternoon, and night shifts: The patient is post CS day 3, and post exploratory laparotomy splenectomy day 2, fully conscious and oriented on room air, vitally stable, no pain or bleeding, or any complaint, on soft diet, normal lochia, abdominal wound dressing done in the morning shift, all prescribed medications and needs attended.

3) On 30-01-2025

Collective nursing notes for morning, afternoon, and night shifts: The patient is post CS day 4, and post exploratory laparotomy splenectomy day 3, fully conscious and oriented on room air, vitally stable, no pain or bleeding, or any complaint, on regular diet, normal lochia, abdominal wound dressing done in the morning shift, all prescribed medications and needs attended.

4) On 31-01-2025

Collective nursing notes for morning, afternoon, and night shifts: The patient

is post CS day 5, and post exploratory laparotomy splenectomy day 4, fully conscious and oriented on room air, vitally stable, no pain or bleeding, or any complaint, on regular diet, normal lochia, abdominal wound dressing done in the morning shift, all prescribed medications and needs attended.

5) On 01-02-2025

Collective nursing notes for morning, afternoon, and night shifts: The patient is post CS day 6, and post exploratory laparotomy splenectomy day 5, fully conscious and oriented on room air, vitally stable, no pain or bleeding, or any complaint, on regular diet, normal lochia, and abdominal wound dressing done in the morning shift, all prescribed medications and needs attended.

6) On 02-02-2025

Collective nursing notes for morning, afternoon, and night shifts: The patient is post CS day 7, and post exploratory laparotomy splenectomy day 6, fully conscious and oriented on room air, vitally stable, no pain or bleeding, or any complaint, on regular diet, normal lochia, abdominal wound dressing done in the morning shift, all prescribed medications and needs attended.

7) On 03-02-2025

Collective nursing notes for morning, afternoon, and night shifts: The patient is post CS day 8, and post exploratory laparotomy splenectomy day 7, fully conscious and oriented on room air, vitally stable, no pain or bleeding, or any complaint, on regular diet, normal lochia, abdominal wound dressing done in the morning shift, all prescribed medications and needs attended.

8) On 04-02-2025

Morning shift: the patient is post CS day 9, and post exploratory laparotomy splenectomy day 8, fully conscious and oriented on room air, vitally stable, no pain or bleeding, or any complaint, on regular diet, normal lochia, and abdominal wound dressing done.

Discharged, counseled about home medications and follow-up. The patient went home with her mother and family.

The patient file is closed.

3.3. Physicians Progress Notes

1) On 26/1/2025 at 09:10 Vitals were stable. At 11:35 the patient was shifted to operation room. Under spinal anesthesia, Caesarian section was completed without any complication. Post operation the patient was shifted to recovery room.

Patient recovery was uneventful, the patient was stable; pulse; 75/min. BP: 117/65 mmHg, SpO_2: 100% on room air.

At 13:06 post Caesarian section the patient was received by obstetrics & gynecology department (post natal unit) from the operation room. At that time there was urinary catheter in place and 20 units Oxytocin on going, vitals were stable.

2) On 26/1/2025 the same day of post caesarian section, at 17:27 the patient was stable, hemoglobin was 10.4 gram/dl. At 20:30 urinary catheter was removed. Inj. Enoxaparin 40 mg S/C was given as VTE prophylaxis, there was no active com-

plaint at that time by the patient.

3) At 22:30 (26/1/2025) patient complained acute chest pain and difficulty of breathing. Vitals: Pulse; 118/min BP; 103/50 mmHg. SpO2: 80%. Evaluated by the obstetrics & gynecology specialist and advised for giving Oxygen by mask, inj. Enoxaparin 60 mg S/C stat, tab Aspirin 160 mg. start infusion of normal saline IV 120 ml/hour. Consultation was done with other multidisciplinary team; internal medicine, pulmonology, and cardiology, blood sample sent for PT, PTT and INR and Troponin and cardiac enzymes, all came within normal limits.

At 22:55 the patient condition deteriorated, BP: 66/36, pulse: 145/min, SpO2: 96%. Follow up hemoglobin: 6.7 gram/dl.

Started packed RBC transfusion, normal saline and human Albumin.

The estimated blood loss is about 3 liters, the patient received totally 5 units of packed RBC.

4) On 27/1/2025 at 12:15 AM seen by radiologist at bed side USG showed intra-abdominal fluid. Received 3 units of FFP, seen and evaluated by pulmonology consultant, advised for CT angiography. CT angio showed free fluid in the abdomen, no Pulmonary Embolism. The patient was shifted to the ICU, and planned to be shifted to operation room for exploration. General surgery and vascular surgery teams were informed. On 27/1/2025 around 3:20 AM, patient was shifted to operation room.

Exploratory laparotomy showed active bleeding from the partially avulsed Splenic Hilum area. Splenectomy was done and hemostasis secured.

3.4. Radiologic Investigations

3.4.1. Abdominal US. 27-01-2025 (Figure 1)

Post CS day 1 with pain abdomen, tachycardia.

Moderate peri-splenic, peri & sub-hepatic as well as pelvic free fluid is noted. Moderate left sided pleural effusion. The liver is of average size, with normal echo pattern, it shows regular surface; no peri-portal fibrosis, no focal lesions, no biliary radical dilatation. The gall bladder is average in size with thin wall no stones or biliary mud could be seen. CBD is not dilated. The spleen is average in size with homogeneous echo pattern and no focal lesion could be seen. The kidneys are of normal size, well differentiated & with no stones, back pressure or space occupying lesion could be seen.

3.4.2. CT Angiography of the Pulmonary Vessels, 27-01-2025 (Figure 2)

Patent pulmonary artery and its main branches as well as inter-lobar branches. Segmental thrombo-embolism can't be totally excluded. Bilateral mild pleural effusion Clear both lung fields. No sizable pulmonary nodules, masses, areas of consolidation or cavitary lesions. No hilar or mediastinal lymph nodes. Normal cardiac size and shape with no gross abnormality of the cardiac chambers. No pericardial effusion detected.

3.4.3. Abdomen & Pelvis CT with IV Contrast, 27-01-2025 (Figure 3)

Moderate to marked abdomino-pelvic free fluid with mixed density "hypodensity

with dependent hyperdensity" denoting recent/active bleeding. Involuted uterus. Hyperdense linear structures are noted at the lower uterine segment as well as at the fundal region for correlation with surgical data/details. Metallic clips are noted at the left cervical region.

Figure 1. Abdominal US.

Figure 2. CT angiography of the pulmonary vessels.

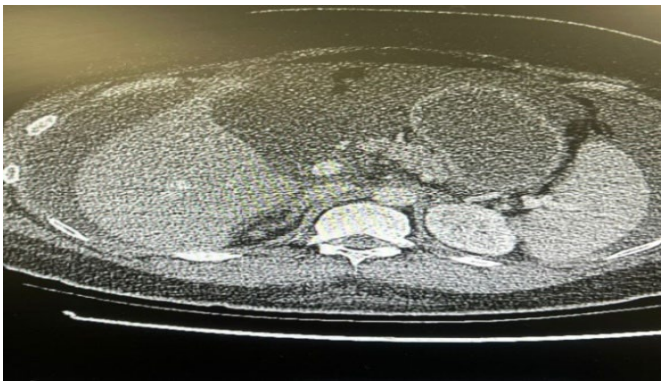

Figure 3. Abdomen & pelvis CT with IV contrast.

3.5. Operation Notes

1) Operation report for exploration under general anesthesia-Abdominal Surgery: Emergency laparotomy with evacuation of abdominal collection

Indication: Post CS with hypovolemia due to intra-abdominal collection

Findings: bulky uterus, severe hemoperitoneum 3litres, bleeding noted to be coming from the upper abdomen, possibly spleen and later confirmed by surgeons, uterus intact with sutures in place, nil bleeding in the pelvis, other findings as in the surgeons notes.

Procedure: patient was placed in the supine position after administration of GA, routine cleaning and draping was done. The previous abdominal incision was opened and quickly developed through deeper layers to reach the peritoneal cavity and uterus exteriorized and abdomen inspected thoroughly with above findings noted. The abdomen was inspected uterus was exteriorized and hemostasis was secured using abdominal mop pressure pack and call sent out to the general surgeons and vascular surgeons. The pressure pack was kept in place until the vascular and general surgeons arrived. Procedure undertaken by the general surgeons and vascular surgeon, noted was hemorrhage from the splenic hilum and splenic artery and vein for which splenectomy was done. Following achievement of hemostasis, warm saline lavage of abdomen was done and swab count was complete and the abdomen was then closed in layers, wound was cleaned and dressing applied, urine noted to be adequate and clear. Her immediate post-op condition was satisfactory; pt was transferred immediately to ICU.

2) General, surgery consultant operation report

Exploratory laparotomy and splenectomy for partially avulsed splenic hilum.

On 27-1-2025, 3:58 AM this patient was in operation room as she was reopened because she entered into hypovolemic shock. The patient was resuscitated and her abdominal wall is opened, the specialist general surgeon sutured the active bleeders from the partially avulsed hilum on spleen side, with help of vascular surgeon. Dissection of the pedicle was carefully done; both splenic artery and splenic vein were double ligated and cut. Hemostasis was secured, stomach, liver, large and small bowel was free of any injury, and abdominal cavity was washed by warm saline till it is clear. The midline incision was closed in layers. The patient was hemoynamically stable.

3) Post-operative notes

In post-operative recovery period, the patient general condition was stable. Patient was shifted back to ICU for close monitoring. On 28/1/2025 the patient was shifted to the obstetrics & gynecology department (post natal unit). Recovery was uneventful, hemoglobin 9.5 gram/dl. Recovery progressed satisfactory. Patient received Flu, Pneumococcal, and Meningococcal vaccines.

3.6. Spleen Biopsy Pathology Report

Gross examination: Received spleen, measures about 14 × 9 × 4 × m in size showing hemorrhage at hilum, cut surface shows areas of congestion. Microscopic ex-

amination: Sections studied reveal splenic tissue showing vascular congestion and areas of hemorrhage. Diagnosis: Histomorphological features are consistent with splenic tissue showing vascular congestion and areas of hemorrhage

The findings rule out underlying pathology, but do not definitively prove a spontaneous etiology.

3.7. Discharge Notes

On 04/02/2025 the patient was discharged home in a stable condition.

4. Discussion

This case is considered as spontaneous splenic rupture, as it occurred after CS in the absence of trauma or traction of intrabdominal organs, and the patient stayed stable for 10 hours after completion of CS. Also the patient has no any underlying hematologic, lymphatic, parasitic, or splenic disease or disorder could predispose to iatrogenic or secondary splenic rupture, which is a rare complication that happens mostly in the third trimester or postpartum period. The classical presentation of spontaneous splenic rupture is similar to free intra-abdominal hemorrhage, which includes left shoulder pain, abdominal pain, and shock. Among all of reported cases of splenic rupture during pregnancy, only 2 2.2% were recorded to occur spontaneously after delivery. Spontaneous rupture of the spleen is a diagnosis of exclusion after any systemic diseases, prior trauma, or abnormal findings in the examination are excluded. Similarly, the splenic parenchyma, vasculature, and capsule should have normal gross and histological features. The management of splenic rupture depends upon factors such as the extent of the injury, the patient's clinical presentation, and the underlying pathology. The main established treatment protocol is emergency splenectomy. However, patients who cannot undergo surgery should be evaluated for non-operative management such as hospital stay, splenic angiography, and splenic angioembolization under strict criteria that must be met. The criteria include the absence of peritoneal distress signs or any abdominal injury that requires surgery, stable hemodynamics, absence of pre-existing splenic disease, and an age below 55 years with a low-grade injury and minimal hemoperitoneum. Moreover, there is another option for treatment such as splenic artery angiography followed by embolization which showed an 85% succession rate. In our case, the patient presented with dizziness, abdominal pain, and hypotension after ten hours of CS completion. An urgent IV contrast CT of the abdomen & pelvis showed moderate to marked abdomino-pelvic free fluid with mixed density "hypodensity with dependent hyperdensity" denoting recent/active bleeding.

Involuted uterus. Hyperdense linear structures are noted at the lower uterine segment as well as at the fundal region for correlation with surgical data/details, metallic clips is noted at the left cervical region. An open laparotomy was performed and splenectomy was done. A large biopsy of the spleen was sent for histopathology, demonstrating splenic tissue showing vascular congestion and areas

of hemorrhage; features are consistent with splenic tissue showing vascular congestion and areas of hemorrhage.

The patient was kept in the hospital for 7 days after the exploratory laparotomy with splenectomy under Ob-Gyne and surgical supervision with daily laboratory CBC checking to detect any features of deterioration or recurrence of intrabdominal bleeding, but the patient remained stable in the post-operative period for 7 days, discharged home in a good clinical state.

In comparison with other cases of Combined Caesarean section and splenectomy mentioned in literature review we can get the following notes:

Case 5.1. Focuses on the importance of imaging for early detection of post caesarean complication, which was an important tool in our case in diagnosing the intra-abdominal collection and the subsequent procedure.

Case 5.2. Offers valuable insights into managing patients with idiopathic splenomegaly during pregnancy, which differs from our case as no splenomegaly or any other splenic disorder

Case 5.3. In this case the trauma was recognized early and treated conservatively without delay, which differs from our case as no trauma before or during surgery.

Case 5.4. This case of splenic rupture manifested post caesarean section and she was treated with laparotomy and Splenectomy, which is very similar to our case in presentation, early detection, management, and outcome.

Case 5.5. This article describes the case of a 32-week-pregnant patient who was involved in a car accident, which differs from our case as no trauma before or during surgery.

5. Conclusion

This is a case report on a rare incident of spontaneous splenic rupture following an elective CS. Despite a lack of traumatic history or systemic disease, the patient developed this life-threatening complication. The prompt recognition of her deteriorating clinical state and the decision to proceed with an emergency exploratory laparotomy were critical in managing the situation. The performed splenectomy and subsequent histopathological examination revealed no evidence of malignancy, confirming the diagnosis of spontaneous splenic rupture. The case underscores the importance of maintaining a high index of suspicion for abdominal complications post-delivery, even in the absence of traumatic or predisposing factors. Clinicians should be aware of such rare complications and consider them in differential diagnoses to ensure prompt and effective treatment.

6. Recommendations

1) This case emphasizes the importance of close monitoring of all postpartum women, even those with low-risk pregnancies, for the early detection of any complication. Healthcare providers should maintain a high index of suspicion for rare but potentially life-threatening events to ensure timely intervention and optimal outcomes.

2) Clinicians should monitor for, such as acute chest pain, refractory tachycardia, and a drop in hemoglobin disproportionate to visible postpartum bleeding.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Miller, K. and Ambardekar, N. (2025) Ruptured Spleen. WebMD.

[2] Korkontzelos, I., Kyrochristou, G., Stefanou, S., Spyropoulou, K., Mpourazanis, G., Theodorou, D.J., *et al.* (2023) Splenic Rupture in an Elective Cesarean Section: A Possible Iatrogenic Event. *Cureus*, **15**, e48478. https://doi.org/10.7759/cureus.48478

[3] Wang, C.F. and Launico, M.V. (2025) Splenic Rupture. StatPearls Publishing.

[4] Ahmed, R.A., Yaseen, F.A., Aljudaibi, R.S. and Ahmed, N.A. (2024) A Splenic Rupture Following a Singleton Spontaneous Vaginal Delivery: The First-Known Case Report in Saudi Arabia. *Cureus*, **16**, e58246. https://doi.org/10.7759/cureus.58246

[5] Nair, A.D., Manchanda, S., Gamanagatti, S., Kachhawa, G. and Bhatla, N. (2022) Post Caesarean Section Complications Conundrum: Role of Imaging. *The British Journal of Radiology*, **95**, Article ID: 20211344. https://doi.org/10.1259/bjr.20211344

[6] Stone, S., Hawthorne, J., Byrket, K., Bond, L., Pera, S., Sharma, V., *et al.* (2024) Combined Cesarean Section and Splenectomy in a Patient with Massive Splenomegaly. *North American Proceedings in Gynecology & Obstetrics*, **3**. https://doi.org/10.54053/001c.117386

[7] Teimoori, B. and farzaneh, F. (2018) Case Report: Splenectomy Due to Splenic Rupture after Caesarian Section. *La Prensa Medica*, **104**, Article 1. https://doi.org/10.4172/0032-745x.1000271

[8] Biancu, M., Cappellacci, F., Piras, S., Bura, R., Manca, A., Canu, G.L., *et al.* (2025) Splenectomy and Emergency Cesarean Delivery for Traumatic Splenic Rupture in a Patient in the Third Trimester of Pregnancy: A Case Report. *Annali Italiani di Chirurgia*, **96**, 713-717. https://doi.org/10.62713/aic.3736

Abbreviations and Acronyms

AAST: American Association for the Surgery of Trauma
BP: Blood Pressure
BPD: Bi-Parietal Diameter
CBD: Common Bile Duct
CPAP: Continuous Positive Airway Pressure
CS: Caesarean Section
CT: Computed Tomography
CTG: Cardiotocography
EDD: Expected Date of Delivery
FCA: Fetal cardiac Activity
FFL: Fetal Femur Length
FFP: Fresh Frozen Plasma
GCS: Glasgow Coma Scale
G6 P4+1: Gravidity 6 Parity 4, + Miscarriage 1
Hb: Hemoglobin
IFC: Inserted Foley Catheter
ICU: Intensive Care Unit
INR: International Normalized Ratio
IV: Intravenous
LIQ N: Liquid Normal
LMP: Last Menstrual Period
MRI: Magnetic Resonance Imaging
NPO: Nothing Per Os (Mouth)
Ob-Gyne: Obstetrics & Gynecology
OBW: Obstetrics Ward
PL F: Placenta Position Fundal
PT: Prothrombin Time
PTT: Partial Thromboplastin Time
RBC: Red Blood Cell
RRT: Rapid Response Team
SA: Spinal Anesthesia
SC: Subcutaneous
SpO_2: Saturation of Peripheral Oxygen
US: Ultrasound
USG: Ultrasound of Gestation
VTE: Venous Thromboembolism