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Original Research Paper

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ANAESTHETIC MANAGEMENT OF A CASE OF 14 YEAR OLD WITH HYPERSPLENISM FOR THERAPEUTIC SPLENECTOMY

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ABSTRACT Hypersplenism is a clinical disorder characterized by splenic enlargement and overactivity adversely affecting a patient's hematological profile1.Splenectomy is associated with numerous intraoperative and postoperative challenges to an anesthesiologist. A 14year-old male presented with pain in the abdomen and noticed a swelling in the left side of the abdomen for past 20 days with physical findings of pallor, and splenomegaly. He was planned for therapeutic splenectomy under general anesthesia. We present a case report of a successfully managed case of hypersplenism for splenectomy.

KEYWORDS : Anesthesia challenges, Hypersplenism, Splenectomy, Thrombocytopenia.

INTRODUCTION:

Splenectomy is associated with numerous intraoperative and postoperative challenges to anesthesiologists including perioperative coagulation abnormalities, intraoperative massive hemorrhage, and post-splenectomy infections[3].While caring for the patients scheduled for splenectomy with hypersplenism, the anesthesia plan must address both patient and procedure-specific concerns[3].

Case Study

We report a case of 14year old male weighing 35 kg, with hypersplenism posted for therapeutic splenectomy. He presented with pain abdomen and swelling in the left side of the abdomen. Patient has history of loose stools, complains of not gaining weight, vomiting on and off in September 2022.He was admitted and started on iv fluids and blood investigations showed severe hypokalemia as low as 1.5mEq/L and potassium correction given over 24-26 hrs. At age 9 years patient was diagnosed with hypothyroidism .At 13 years of age he presented with yellowish discoloration of eyes, one episode of bilious vomiting, yellow colour urine. He was treated, but as the bilirubin was on increasing trend he was referred to our hospital. On physical examination he had pallor, no icterus and gross splenomegaly up to umbilicus. His blood investigations revealed hemoglobin level of 9.5g%, white blood cell 2,500, platelet count 94000/mm3, total bilirubin 0.92mg/dL, direct bilirubin 0.20mg/dL, prothrombin time (PT) and international normalized ratio (INR) 18 and 1.33, respectively. The rest of the liver function test, serum creatinine, and serum electrolytes were within normal limits. Despite all the investigations, no confirm diagnosis regarding splenomegaly could be made and he had persistent pancytopenia with decreasing platelet count. So, the decision of therapeutic splenectomy was taken in view of his deteriorating clinical condition. The patient was immunized with pneumococcal, meningococcal, and Haemophilus influenzae vaccines 2 weeks before surgery

On the day of surgery, patient is kept on nil by mouth, venous access was secured with wide bore 18G intravenous cannula antibiotic and aspiration prophylaxis given and infusion of Ringer lactate was started. The patient was premedicated with injection glycopyrrolate 0.2 mg iv, injection midazolam 1mg iv, and injection fentanyl 70 micrograms iv. After preoxygenation for 3 minutes, anesthesia was induced with inj. propofol 2 mg/kg and inj. succinylcholine 2 mg/kg iv and intubated with a 6.0 mm cuffed endotracheal tube. Anesthesia was maintained with oxygen and nitrous oxide 50:50 concentration, isoflurane 0.6 -1.2% dial setting and inj. vecuronium. Hypothermia was avoided by infusing warm IV fluids, and by using a body warmer. The surgery lasted for 4 hours and total intraoperative blood loss was around 500 ml and urine output was 750 ml. The patient received a total of 1500 mL of crystalloids and was transfused 1unit of whole blood. The massively enlarged spleen was removed. Patient was extubated and shifted to recovery room. Injection paracetamol 500mg iv qid, injection tramadol 50 mg iv bd, and inj. diclofenac 75 mg iv sos were used to manage postoperative pain. Histopathology of spleen shows possibility of storage disorder and lymph node shows reactive hyperplasia.The patient remained stable postoperatively and was discharged after 2 weeks.

DISCUSSION:-

Hypersplenism is defined as a clinical disorder with characteristic splenic enlargement and overactivity affecting one or more hematological lineages[1] .It adversely affects the patient's hematological profile leading to anemia, thrombocytopenia, and leukopenia[2] .It leads to platelets sequestration of about 30% which can reach up to 90%[1] .Hypersplenism can be secondary to liver cirrhosis, infections, myeloid lymphoproliferative disorder, malignancies, and alcoholism. Lymphomas like chronic lymphocytic leukemia, hairy cell leukemia, splenic marginal zone lymphoma, and myeloproliferative neoplasms like chronic myeloid leukemia, polycythemia vera, essential thrombocythemia, primary and secondary myelofibrosis are the most prevalent hematological malignancies associated with splenomegaly[4] .Splenectomy can be used to treat hypersplenism. Anesthetic management requires a multidisciplinary collaboration of anesthesiologists, surgeons, hematologists, and gastroenterologists[1] . The anesthesia challenges include perioperative management of moderate to severe thrombocytopenia and associated hemostasis disorder which increases the risk of bleeding in case of invasive procedure. Intraoperative management of massive hemorrhage and postoperative complications like portal vein and mesenteric vein thrombosis (incidence 7–10%) and asplenia predisposing patients to a higher risk of overwhelming post-splenectomy infection (OPSI)[2] .Although neoplasms of the spleen are rare entities they pose a diagnostic challenge and are found incidentally after splenectomies[5].

CONCLUSIONS:

We could successfully manage the case of hypersplenism for therapeutic splenectomy. Splenectomy for hypersplenism was effective with a good postoperative outcome. Anesthesia management includes proper perioperative management of thrombocytopenia and other hemostasis disorders, with drastic measures for the management of intraoperative hemorrhagic shock. Vaccination before splenectomy is a must to prevent postoperative infections.

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