Anaesthetic Consideration for Emergency Laparotomy in a Paediatric Patient with Henoch Schonlein Purpura

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ABSTRACT

Introduction: The most common pediatric autoimmune systemic vasculitis is Henoch- Schonlein purpura/ IgA vasculitis presents with a classic triad of purpura, arthritis, and abdominal pain. In two-third of patients, gastrointestinal symptoms of HSP including abdominal pain, diarrhea, and vomiting may occur after the skin changes and kidney involvement may be present in 40% patients presenting with hematuria. It has a self-limiting course.

Case Report: We report successful management of a 5-year-old child with severe abdominal signs and symptoms of HSP, necessitating surgical intervention after the development of skin changes and arthralgia.

Conclusion: To avoid morbidity and mortality a thorough preoperative evaluation with details of drug therapy, perioperative as well as postoperative vigilance, careful positioning to avoid tissue compression should be done.

Keywords: Henoch-Schönlein Purpura, Intussusception, Laparotomy, Autoimmune Vasculitis

INTRODUCTION

Henoch–Schönlein purpura (HSP) additionally known as IgA vasculitis/allergic purpura/anaphylactoid purpura is the most common autoimmune disease involving the skin, mucous membranes,and other organs of the pediatric age group with a self- limiting course. It affects mostly male children, aged 4–11 years with peaks at 5 years. It is characterized by non-thrombocytopenic purpura, arthritis or arthralgia, colicky abdominal pain, and nephropathy. The annual incidence is 13–20/100,000 children.[1] There is palpable purpura on the buttocks and lower extremities. HSP is often preceded by an infection or there may be a history of intake (angiotensin-converting enzyme inhibitors, vancomycin, diclofenac, rantac, streptomycin, etc. drugs) medicines. HSP has an overall excellent prognosis; however, morbidity depends on renal and neurologic involvement in the long-term. Furthermore, no standard anesthetic guidelines have been suggested for patients suffering from HSP. We report a case of a 5-year-old child with intussusception, along with the purpuric rash and arthralgia.

CASE REPORT

A 5- year-old male child weighing 14.5 kg and height 100 cm presented with complaints of fever, loose stools with altered blood for three days, petechial rashes with palpable purpura, along with left knee and ankle pain with swollen feet since one day. There was no history of any infection or any medication was taken. On examination he was afebrile, maintaining vitals, had diffuse, non-blanching palpable purpura on the extensor part of both legs along with bilateral edema. Respiratory and cardiovascular systems were normal.On abdominal examination, the abdomen was soft, non-distended, no lump was present. Further on per rectal examination blood stained stools were present. Laboratory testing revealed Hemoglobin 11.8 gm.%, TLC- 15,000/ mm^3, N 75.6, L 20.6, M 2.8, E 0.9, platelets-621 lacs/mm^3, urea-19, creatinine 0.19, and liver and kidney function tests, serum electrolytes, calcium, and magnesium examination were also normal. Bleeding time 2' 25", clotting time 4' 15" & CRP assay done was positive (11mgL^{-1}). Urine complete examination was normal. Serum immunoglobulin levels showed an increase in IgA levels too. The patient was started on antibiotics along with Tab Prednisone 20 mg once a day. After 4 days of admission, the patient started complaining of severe colicky pain abdomen and surgical consultation was done. Ultrasonography showed minimal ascites with colitis suspecting Cole-colic intussusception in ascending colon along with bowel wall thickening in some intestinal segments and leukocytosis. A diagnosis of HSP with joint and GI involvement was made.

The patient was then posted for emergency exploratory laparotomy. He was premedicated with injections ondansetron 2 mg, midazolam 1 mg, and monitored continuously with electrocardiography (ECG), oxygen saturation (SpO_2), and non-invasive blood pressure (NIBP), temperature was attached. Then he was induced with injection Propofol 30 mg, fentanyl 30 µg given intravenously. Hydrocortisone 50 mg was also administered. Muscle relaxation was achieved with atracurium 7 mg and he was intubated with a cuffed 5.5 mm endotracheal tube. Anesthesia was maintained with sevoflurane 2-3%, in 50% O_2+ 50% Air and injection atracurium on volume control mode. The caudal block was also given with 14 ml 0.25% bupivacaine. Positioning was carefully done to prevent injury and skin necrosis. The patient remained hemodynamically stable, maintaining SpO2 of 99-100% throughout the surgery which lasted for 2 hours. He was reversed with an injection Neostigmine 750 µg and Glycopyrrolate 150 µg. The patient was fully awake

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and shifted to the recovery room. Intravenous acetaminophen (140 mg, SOS) was used for pain relief. The patient was observed in the pediatric ward, methylprednisolone (1mg/kg/day) was administered. He was discharged on the 7th day after the tapering course of oral prednisolone with full resolution of abdominal and joint symptoms. The Follow-up urinalysis was normal.

DISCUSSION

HSP was first described in 1801 by Dr. William Heberden. It often follows upper respiratory tract infection and is the most common form of systemic vasculitis in children with an annual incidence of 140 cases/million persons. There is the deposition of immune complexes containing the antibody immunoglobulin A (IgA) and complement complexes (C3) in the arterioles, capillaries, and venules as a response to infectious agents such as Mycoplasmas and Group A streptococci Other triggering agents such as drug allergies, food reactions, exposure to cold, insect bites,[2] may also be seen. The classic triad of symptoms includes purpuric rash occurring on the buttock area and lower extremities, arthritis involving knees, ankles, and elbows a colicky abdominal pain. It usually resolves within several weeks and requires no treatment apart from symptomatic control. However, in one-third of cases, it might relapse and cause irreversible kidney damage. Therefore children affected by this disorder need a close follow-up of renal status along with supportive treatment. Rarely fatal complications like pulmonary hemorrhage and myocardial infarction could be there.[3,4]

In up to 33% of the patient's gastrointestinal (GI) symptoms may also occur. Abdominal pain due to vasculitis of the gut may lead to intestinal mucosal swelling, edema and subserosal, and submucosal hemorrhage, leading to serious GI tract complications including intussusception, bleeding, gastric ulcer, intestinal perforation, and necrosis leading to laparotomy.[5]

It has been seen that gastro-intestinal symptoms appear before the skin rash in 25% of children with HSP.[6] However in our case too, the child presented with purpura involving the lower extremity preceding the gastrointestinal symptoms. HSP may be misdiagnosed as hypersensitivity vasculitis, because of failure to detect IgA antibody in the walls of involved blood vessels. There is also elevated blood urea nitrogen and creatinine levels along with global organ involvement in hypersensitivity vasculitis.[7]

According to diagnostic criteria of the European League against Rheumatism and Paediatric Rheumatology European Society, palpable purpura plus one feature among the following suggests the diagnosis of HSP.[8]

1. Diffuse abdominal pain
2. Arthritis/arthralgia
3. IgA deposition in any biopsy
4. Renal involvement (haematuria/proteinuria).

All the above criteria for HSP were fulfilled by our patient.

Supportive care involves a short course of prednisone or an NSAID, if the kidneys are not involved. Early glucocorticosteroids (GCSs) may shorten the duration of abdominal pain, decrease the risks of intussusception and surgical intervention but may not prevent renal disease. However in our case despite the patient being on steroid for a few days still has intussusception.

Long term permanent deformity is not seen as extrarenal manifestations respond well to immunosuppressive therapy and plasmapheresis.

For Perioperative management, the liver and kidney function tests are needed to maintain patients on Isoflurane/Sevoflurane and using atracurium for neuromuscular blockade. Further necrosis over pressure points due to tissue compression while positioning or applying blood pressure cuff, and during endotracheal intubation should be avoided. Administration of sufficient intravenous fluid is also necessary. As the patients are on corticosteroids, the veins are generally deep- seated; therefore intravenous cannulation may be difficult. Steroid cover shall be instituted in those on treatment with steroids. Varying degrees of hypoxemia attributable to alveolar hemorrhages and granular deposits of IgA in these patients may require ventilator support.

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CONCLUSION

Henoch-Schönlein purpura is the most common non-thrombocytopenic, purpura along with systemic vasculitis of childhood with the involvement of skin, gut, joints, and kidneys commonly. Meticulous preoperative evaluation with details of drug therapy, perioperative renal, liver, and cardiac functions is important. Sufficient intravenous fluid administration is necessary. Care during positioning, and knowledge about anaesthetic management along with avoidance of tissue compression is very important. The disease can worsen postoperatively, tissue compression and appropriate postoperative vigilance, and care will avoid morbidity and mortality encountered by HSP.

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