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Anaesthetic Management of a Patient with Ocularaspergillosis with brain abscess in a k/c/o Aplastic anemia

Nikhil Yadav[1], Nisha Jha[2], Manikanta Goda[3],Benhur Premendran[4]
[1]*Assistant Professor, Department of Anesthesiology, MGIMS, Sewagram*
[2]*Senior Resident, DepartmentofAnaesthesiology,MGIMS, Sewagram*
[3]*Junior resident – DepartmentofAnaesthesiology,MGIMS, Sewagram*
[4]*Professor, Department of Anaesthesiology,MGIMS,Sewagram*

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ABSTRACT - Aplastic anemia is a hematological disorder due to bone marrow failure characterized bypancytopenia. The anesthetic management of these patients possesses major risk because of the rarity of thedisease, coagulation defects and increased risk of infections. We report a case of aplastic anemia in a 24yearoldmalewhounderwentgeneralanesthesiafore nucleationofleft sided ocular aspergillosis.Afterevaluatingthe risk and benefits of operative procedure, patient was scheduled for elective surgery. Hemodynamicstatus of the patientwasstable,andpost extubationperiod was uneventful**.**

KEYWORDS-Aplasticanemia,Ocular Aspergillosis, Anestheticchallenges,

I. INTRODUCTION

Aplastic anemia is defined as pancytopenia with hypo cellularity of bone marrow. It is due to reduction in thenumber of pleuripotent stem cells. Etiology is either primary(congenital) or secondary(acquired).Various causes like cytotoxic drugs,certain antibiotics, anticonvulsants,immunosuppressants, radiation exposure,Viral infections (HIV, EBV, Parvovirus) are identified as causes of secondary aplastic anemia(1)(2). The incidence of AA is 2-3 per million per year in Europe, but higher in East Asia. The exact incidence in India is not known. (3). Most common age of presentation is 25 -60 years.

Patient presents with symptoms of bone marrow failure, usually anemia or bleeding, and less commonlyinfections. Physical findings include ecchymoses, bleeding gums, epistaxis, bruising in with minimal trauma orblood blisters in the mouth along with infections. Retinal hemorrhages can be seen in some patients. Blood picture demonstrates pancytopenia, low reticulocytesand often macrocytosis. Bone marrow aspiration and trephine biopsy reveal hypocellularity and increased fat spaces. (2)(1),The mainstay of treatment for this disease is immunosuppressive treatment and Hematopoietic Stem Cell Transplantation (HSCT)..ATG and Cyclosporin (CSA) represent the most commonly used agents in first line immunosuppressive therapy (4)

The anaesthetic management of aplastic anaemia is challenging because of the rarity of the disease, associatedpancytopenia and immunosuppression. We report a case of aplastic anaemia in a 24 years old male whounderwentgeneralanaesthesiaforenucleationofle ft sided orbital aspergillosis.

Orbital aspergillosis is a rare fungal infection mostly presenting as a unilateral orbital mass, which can cause proptosis, impairment of ocular motility, eyelid swelling and/ or optic nerve compression, leading to vision loss .(5).Immunocompromised hosts are more prone to develop Acute Invasive form of the infection. A further expansion of the mass towards the intracranial cavity due to a delayed diagnosis or inadequate therapy can even be fatal to the patient (1). Identifying the disease is often complex due to the multitude of possible aetiologies and requires orbital imaging studies as well as histopathological and microbiological examination of a biopsy specimen .

II. CASEREPORT

A 24 years male patient, non-hypertensive, non-diabetic was admitted in the medicine department of a tertiary carehospital as a case of aplastic anaemia with severe pancytopenia. He presented with history of fever and giddiness .In his routine investigations, blood picture showed pancytopenia following which bone marrow biopsy was done and diagnosis of aplasticanaemia was established .Danazol and Cyclosporine were started as the initial line of treatment and he was subsequently advised regarding Anti Thymocyte Globulin and HBMT therapies. Because of non

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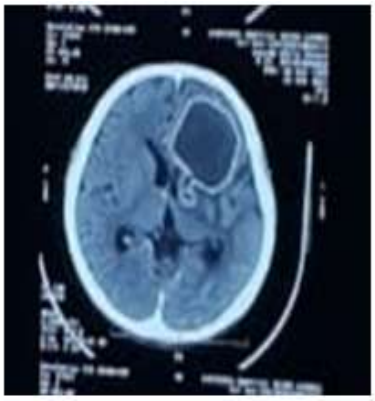
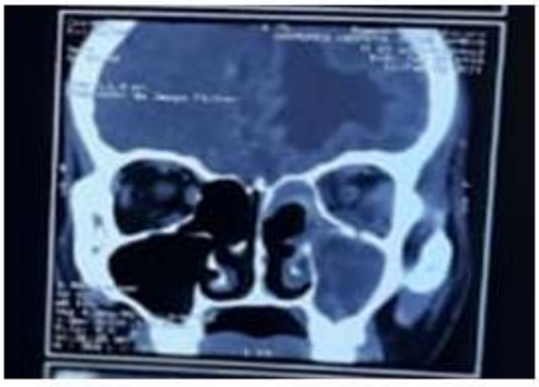
availability of identical bone marrow donor and shortage of resources, Antithymocyte Globulin was selected as the primary line of treatment. After two days of receiving therapy,the patientcomplained of fever and swelling over left eye with decreased vision and soon developed altered sensorium.. MRI contrast was done which suggested posterior ethmoidal sinusitis and left sphenoidal sinusitis of probable Fungal etiology. ENT opinion was taken and functional endoscopic sinus surgery was done and sample was sent for analysis which was suggestive of aspergillosis. He was then treated with anti-fungal and other supportive treatment. His MRI brain was repeated after 7 days, which showed brain abscess in
left frontal and temporal regionsof fungal etiology. Meanwhile he had progressive swelling over left eyeball, and a progressive worsening of mental status. Neurosurgery team opined that the patient was unlikely to benefit from neurosurgical intervention. The ophthalmology team decided to proceed with retrobulbar injection of Amphotericin B, subsequent to which, he developed severe chemosis and internal hemorrhage of left eye. With a combined opinion from neurosurgeon, ophthalmologist and microbiologist, he was plannedfor an enucleation surgery. Poor prognosis was explained to the patient's relatives.

Duringpre-anestheticcheckup,,weight50kg,pulsewas86beats/min,BP90/60mmHg,RR16breaths/min, sPO_2 was 97% on room air. On examination, he was severely anemic, multiple echymoses were found on different sites of the body, altered mental status, and weakness of right upper and lower limbs. On local examination,the left eye showed, proptosis with severe conjunctival and corneal chemosis.. Air way examination revealed mouth opening two fingers,MallampatiIII.Onlaboratoryinvestigation, his hemoglobin was 3mg/dl, RBC 0.90M/µL, total WBC count 2550/µL,platelets 33000/µL.He was then transfused with three units whole blood and eight random donor platelets. His bloodpicture following





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transfusionshowed,Hemoglobin8.3gm/dl,RBC2.48M/µL,totalWBCcount2100cells/µL,platelets44000/µL,RBSwas 100mg/dl,S.creatinine0.64mg/dL,bloodgroupOpositive, and electrolytes, LFT and coagulation profile werenormal. Chest x-ray was normal, ECG showed normal sinus rhythm withheartrateof86 beats/ min.

Patient was taken to Operation Theater after 06 hours of fasting. Platelets and blood were arranged for intra operative transfusion. Neurosurgical team was also involved as standby during surgery. Pre-anesthetic vitals were NIBP 90/47mmhg with mean arterial pressure of 61 mmhg, heart rate was 90/min, spo2 was 98 % on room air. Under all aseptic precautions, two wide bore (18G) iv lines were secured and one pint of RL was given following which his blood pressure improved to 105/70mmhg. Tranexamicacid 1 g was given before induction of anesthesia. Preoperative single shot antibiotic was given. Premedication was given with inj.glycopyrrolate (0.2mg), inj. midazolam (1mg). Induction of generalanaesthesia was done with titrated doses of propofol (70mg) and inj. Fentanyl (100µg) .Cisatracurium (10mg) was used as muscle relaxant.. Intubation was done withendotracheal tube(07 mm ID) there wasnodifficultyduringintubation. Hypotensive anesthesia wasprovidedusingpropofol, opioids andsevoflurane.Surgery was started. Intraoperative Analgesia was provided with fentanyl and paracetamol. Intraoperatively, 2 units of platelets were transfused.Enucleation Surgery lasted for two hours without significant blood loss. Patient's vitals were uneventful in this period.ReversalofanesthesiawasdonewithNeostigmine(2.5mg) and Glycopyrrolate(0.5mg) ,it was smooth and uneventful. In the postoperative period, vitals and any bleeding from the wound were monitored carefully.Outcome of surgery wassatisfactory.

III. DISCUSSION

Patients of aplastic anemia represent a significant challenge for surgeons and anesthesiologists as coagulationdefects, changes of blood viscosity, immunosuppression, and bone marrow insufficiency pose a major threat tothe patient in the perioperative period (6). The decision for surgery should be made carefully and surgeryundertaken only if a patient has a life threatening or debilitating condition requiring surgical intervention(7)[1]. Toavoidperioperativecomplicationsathoroughpreoperativeassessmentandintensepreparationofthepatient ismandatory before any elective surgery. Standard sterile precautions , smooth induction and emergence should be the goal of anesthesiologists(8). In this patient, induction, maintenance and reversal of anesthesiaweresmoothanduneventful,andallproceduresweredoneunderstandard aseptic precautions.

An important issue in these patients is perioperative management to decrease the morbidity and mortality. To avoid potential complications caused bycoagulation defects,meticuloussurgical hemostasis and substitution of blood products is required. Hypotensiveanestheticagentsand prophylactic tranexamic acid wereusedtocontrolbleeding. Inj. Succinylcholine and Ketamine were avoided in order to prevent rise in intraocular and intracranial pressure.

Another important aspect of perioperative care in these patients is the increased risk for infections due toneutropenia. Therefore, proper aseptic precautions should be taken for all anaesthetic maneuvers including intravenouscannulation, endotracheal intubation etc. perform surgery in aseptic conditions, and perioperative antibioticcoverage is essential which was given here (7). Adequate postoperative analgesia is of great importance as it is essential for deepbreathing and adequate coughing because of which secretions would not retain in the lungs, and subsequently preventpulmonaryinfection(7)

IV. CONCLUSION

In this patient,surgery was done under general anaesthesia and postoperative period was uneventful.Patient with aplastic anaemia needs careful evaluation during pre-anaesthetic checkup and preparation including strict aseptic precautionsalong with smooth induction and emergence from general anaesthesia, proper hemostasis, infection control andgoodpostoperative analgesia.

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