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Blood Transfusion Challenge to Anaesthesiologist – A Case of Bombay Blood Group

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Abstract
Anaesthetic management of L5-S1 spondylolisthesis correction by posterior instrumentation with pedicle screw fixation of a 40 year old male patient with Bombay red cell phenotype is discussed. It is emphasized that with a good team work between orthopedician, anaesthesiologist and nursing staff will make it possible to produce excellent results in these cases.
Keywords: *Autologous transfusion, Bombay blood group, spine surgeries.*

Introduction

Bombay blood group is a rare autosomal recessive within the ABO blood group.[1] The estimated prevalence is 1 in 10,000 in India and 1 in 100,00,000 outside India[2]. We have come across a patient with rare blood group in our institution with spondylolisthesis at 2 levels L4-L5, L5-S1 posted for posterior instrumentation with pedicle screw fixation which underwent for 6 hours.

Case Report

A 40 years old male patient presented with low backache and was diagnosed to have L4-L5 and L5-S1 spondylolisthesis. During the pre operative evaluation the patient was found to have Bombay blood group. MRI of lumbosacral spine confirmed the L4-L5 disc – posterior annular tear with postero antral disc protrusion and grade-1 anterior listhesis of L5 over S1.Laboratory investigations and airway assessment were unremarkable. The baseline hemoglobin was 10.2g/dl. Preoperative preparation included arranging for adequate blood. On the day of surgery, baseline vitals noted and peripheral vein cannulated. General anaesthesia regime included the use of glycopyrolate 0.01mg/kg, morphine 0.1mg/kg, thiopentone 5mg/kg and vecuronium 0.1mg/kg intravenously followed by intubation with armoured tube and the patient was then put on prone position.

Tranexamic acid 15mg/kg iv bolus was administered and patient was maintained with isoflurane and vecuronium. Patient was haemodynamically stable intra-operatively. At the end of the procedure, we had advised the surgeon to place an epidural catheter for post-op analgesia. Post surgery hemoglobin was 8.6g/dl. One unit of packed cells was transfused following which

hemoglobin was 10g/dl. Postoperative analgesia was provided with 6ml of 0.1% bupivacaine +50mg tramadol epidurally. Patient was discharged on the 12th postoperative day.

Postoperative Analgesia

TIME(HRS)	VAS
0	1
8	3
16	5
24	4
32	3
40	3
48	2

Discussion

Bombay blood group lacks A,B,H antigens on red cells but has anti-A , anti-B and anti-H antibodies in serum reacting with all O blood groups. For elective cases, autologous transfusion or RBC transfusion from donor of Bombay phenotype is a good alternative. However, in cases of emergency it is difficult to find Bombay blood group in any blood bank. Facilities for cryopreservation can also be beneficial for rare blood group.

Conclusion

Spine surgeries are always challenging for anaesthesiologist. Thorough pre-op assessment, proper monitoring intraoperatively along with post opertive analgesia, physiotherapy and rehabilita-tion can result in excellent outcomes and patients with Bombay phenotype RBC present as type ”O” but they cannot receive RBCs from any other phenotype other than Bombay blood group.

References

1. Khan MQ. Bombay blood group: A case report. Pac J Sci Technol 2009; 10:333-7.
2. Oriol R, Candelier JJ, Mollicone R. Molecular genetics of H.Vox Sang 2000; 78:105-8.
3. Reid ME, Westhoff CM. Human blood group antigens and antibodies. In: Hoffman R, Furie B, Benz EJ Jr, editors. Hematology: Basic Principles and Practice. 5th ed. Philadelphia: Churchill Livingston; 2008. pp. 2163–78.
4. Chowdhury FS, Siddiqui MA, Rahman KG, Nasreen Z, Begum HA, Begum HA. A rare and clinically important blood Group - Bombay blood group. Bangladesh J Med. 2011;22:21–3.
5. Cooling LL, Kelly K, Barton J, Hwang D, Koerner TA, Olson JD. Determinants of ABH expression on human blood platelets. Blood. 2005;105:3356–64.
6. Nairn TK, Giulivi A, Neurath D, Tokessy M, Sia YT, Ruel M, et al. Urgent replacement of a mechanical mitral prosthesis in an anticoagulated patient with Bombay red blood cell phenotype. Can J Anaesth. 2010;57:583–7.
7. Yamawaki T, Tanaka H, Takeuchi S, Yanase H, Taniguchi H, Toyoda N. Autologous blood transfusion using recombinant human erythropoietin in radical hysterectomy. Asia Oceania J Obstet Gynaecol. 1994;20:147–53.
8. Watanabe Y, Fuse K, Konishi T, Kobayasi T, Takazawa K, Konishi H, et al. Autologous blood transfusion with recombinant human erythropoietin in heart operations. Ann Thorac Surg. 1991; 51:767–72.
9. Mercuriali F, Zanella A, Barosi G, Inghilleri G, Biffi E, Vinci A, et al. Use of erythropoietin to increase the volume of autologous blood donated by orthopedic patients. Transfusion. 1993;33:55–60
10. Ward AF, Grossi EA, Galloway AC. Minimally invasive mitral surgery through right mini-thoracotomy under direct vision. J Thorac Dis. 2013;5(Suppl 6): S673–9.