ANTI-M ANTIBODY IN A NULLIPAROUS NEVER TRANSFUSED WOMAN – A CASE REPORT

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ABSTRACT

Anti-M antibodies are mostly IgM, less commonly mixture of IgM and IgG and rarely solely of IgG type. The naturally occurring Anti-M is usually inactive at 37°C making it insignificant clinically. In less common cases the antibody is active at 37°C making it clinically significant due to its ability to cause haemolytic transfusion reactions (HTR) and haemolytic disease of fetus and newborn (HDFN). We report a case of naturally occurring Anti-M antibody active at 22°C and 37°C as well, detected incidentally in a nulliparous never transfused woman. This clinically significant antibody caused discrepancy in blood grouping also. M antigen negative red cells are required for transfusion in such cases and its presence creates a potential risk of HDFN in future pregnancies.

Keywords: Anti-M antibody, Red cell alloantibody, Naturally occurring anti-M.

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INTRODUCTION

Anti-M, a relatively common naturally occurring red cell antibody was described first time in 1933[1,2]. Being IgM type [3] this antibody is mostly inactive at 37°C rendering it clinically insignificant [4]. However, sometimes ANTI-M antibody exists as a mixture of IgG and IgM antibodies and is thus active at room temperature and by indirect antiglobulin test making it clinically significant [4]. Rarely, it can be solely of IgG type [5]. Here we report a case of a female patient who had clinically significant ANTI-M allo antibody active at 37°C.

CASE REPORT

A 40-year-old, nulliparous woman diagnosed with cholecystitis was advised cholecystectomy by her surgeon. She had no history of transfusion of any blood component. During workup, her complete blood counts showed haemoglobin of 9.6 g/dl. She was advised to arrange two units of red cell transfusion during operation. A blood group discrepancy was noted during routine typing of her blood. The ABO blood group was 'AB' on forward grouping and 'O' on reverse grouping. The Rh D was positive (Figure-1).

To resolve this ABO discrepancy, immuno-haematological workup of the case was initiated in the advanced serology lab of our institute. Direct antiglobulin test (DAT) was performed on red cells using poly-specific antiglobulin reagent (IgG and C3d) which turned out to be negative. Auto control was also negative. Indirect antiglobulin test (IAT) using pooled O cells was positive. Antibody screening test was done with commercially available three cell panel (Diacell), which showed 3+ agglutination in all three cells of the panel. Antibody identification using commercially available 11 cell panel (Diapanel) was performed and ANTI-M antibody was identified (Figure-2). The discrepancy in reverse grouping was solved by using M antigen negative A, B and O cells and blood group of the patient was typed as AB Rh D positive. The red cell phenotyping of patient with ANTI-M reagent confirmed absence of M antigen. Patient was transfused with 'M' antigen negative AB Rh D positive IAT crossmatch compatible red cells with no immediate and delayed consequences.

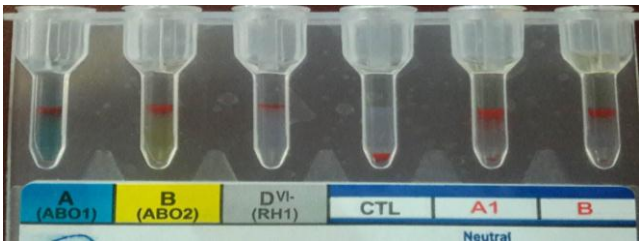

Figure-1: Forward and reverse blood grouping. (Agglutination is seen with anti-A, anti-B (Group AB) and anti-D (Rh D positive), Negative reagent control and agglutination with A1 and B cells (Group O).

Figure-2: Antibody identification panel. (Agglutination in cell no 2,3,4,5,6,7,8 and 10. Consistent with Anti-M)

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DISCUSSION

The Anti-M antibody was discovered by Wolf and Johnson in 1933 [1]. This is a relatively common, naturally occurring antibody which is predominantly ANTI-M [2]. Anti-M antibody of IgM type is clinically insignificant because it is inactive at temperature 37° C. Immunizing type or IgG type ANTI-M antibody rarely exist, which is active at 37° C or during indirect antiglobulin testing making it clinically significant. Although rare but it can cause delayed haemolytic transfusion reaction [6,7]. It can also cause haemolytic disease of fetus and new born (HDFN) along with prolonged anemia if mother has allo ANTI-M antibody [8]. The HDFN and anemia is due to its ability to destroy erythroid precursors as well [8]. It is therefore essential that antigen negative compatible red cells be transfused to avoid untoward incidents in such patients [4]. In our patient as there was neither history of any transfusion or pregnancy, most probably this Anti-M was naturally occurring [2,5]. Further testing to see if anti-M was IgM alone or mixture of IgG and IgM was not performed. But its strong activity at 37˚C pointed out the strong possibility of presence of IgG. Cases of anti-M antibodies have been reported in literature quite similar with our case [2,5].

CONCLUSION

Anti-M is relatively uncommon antibody which may be IgM or IgG. It can not only cause discrepancy in ABO blood grouping but may also be of clinical significance if it is an IgG, reactive at 37^{o}C. Patients with such antibody requiring blood transfusion are transfused with M antigen negative blood.

AUTHOR CONTRIBUTION

Rozina Ghani: Data collection, literature review and manuscript writing.

Maqbool Alam: Overall supervision and Final drafting.

Muhammad Sajid Yazdani: Concept and drafting.

Muhammad Ali Rathore: Final drafting.

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