



LETTER TO EDITOR

Positive Indirect Coomb's Test as an Indicator of Bombay Phenotype of O-group Donors

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Dear Editor

Bombay blood group, first reported by Bhende et al.,¹ is the rarest of the rare blood groups. It is usually confined to Southeast Asian countries.² It is characterized by absence of the H antigen on the surface of the red cells and presence of anti H, anti A and anti B in the serum.

A 22-year-old man came to be our blood bank as a first time replacement donor. Routine blood group was performed and was found to be O positive. Indirect Coombs test (ICT), which is done as a routine in all donors, was strongly positive (4+). Further workup for positive ICT was done by performing the Biorad ID-DiaCell I-II-III Asia 3-cell panel. A 4+ reaction was seen in all the tubes. The 11 cell panel (Biorad ID- DiaPanel) which was performed next also gave a 4+ reaction with all the 11 cell types. Autocontrol, however was negative ruling out autoimmune antibodies as a cause of positive ICT. Reverse grouping with pooled A cells, B cells and O cells was performed showing agglutination (4+ reaction) in all the tubes. This showed presence of an antibody in the serum of the donor which reacted with antigens present on A, B and O cells. Such an antigen is the H antigen, thus the possible antibody in the donor was anti-H. This antibody is found in the very rare "Bombay blood group" which has no H antigen on the red cells and a naturally occurring anti-H antibody in the serum. Presence of anti-H in the serum was responsible for the 4+ reaction with all the cells types in the 3-cell and 11-cell

panels since these cell types are of the O group and have H antigen on the red cells. The Bombay blood group was confirmed by lack of agglutination with anti H antisera. Thus positive ICT was the first indicator of the Bombay phenotype. The donor's family could not be tested for Bombay phenotype since he was a replacement donor and was lost to follow-up.

The probability of finding a person with Bombay phenotype is 1 in 250,000 people.³ India has the highest number of people with Bombay phenotype (1 in 7,600 people).³ This may be due to the higher number of consanguineous marriages in India.

During routine cell grouping, Bombay blood group is categorized as O group because there is no reaction with anti A or anti B antibodies. It is usually during cross matching that one notes incompatibility with all other O group blood samples. Blood from Bombay blood group donors is precious and should be reserved for patients with the Bombay blood group phenotype. Cryopreservation of blood units of this rare blood group may make blood readily available for such recipients. It is also important to screen family members of persons with this blood group since it is very likely that one or more relatives have the blood group. Such individuals should be counseled to become voluntary donors and register themselves in blood banks, so that if need arises, they can be contacted.

Conflict of Interest: None declared.

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