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Classical Bombay phenotype in a 26-year-old male donor

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Bombay and para-Bombay phenotypes are rare blood groups, which differ from each other with respect to their ABH blood group profile. Individuals with Bombay phenotype (Oh) are non-secretors of ABH antigens and have red cells that type as group O. However, they do not express H antigens on their red cells and their serum contains high titre, haemolytic anti-H antibodies reacting with equal strength at 4 °C as well as 37 °C. These antibodies lyse red cells of any ABO group except those from another individual of Bombay phenotype. Rarely individuals are identified with ABH antigens in their secretions, this is referred to as the para-Bombay phenotype.^{1,2} Due to lack of correct blood grouping practices, the rare Bombay Oh phenotype may be missed, subjecting patients to the risk of severe haemolytic transfusion reaction.³

A 26-year-old first time male donor, resident of Bellampally village, near Nalgonda, India and an auto-rickshaw driver by occupation donated blood at our blood bank. The donor had no past history of any surgery or blood transfusion. Cell and serum grouping was performed by tube method. O group donor samples were used as control when testing with anti-H lectin. Cell and serum grouping showed discrepant results.

Preliminary blood grouping showed 4+ reactivity against A,B and O screening cells. Cell grouping revealed no reactivity with anti-A, anti-B and anti-AB. Sample was further

tested with anti H lectin (*Ulex europaeus*) and no reactivity was observed. O cells used as control showed 4+ reaction with anti-H. Saliva testing was performed and it showed that the donor was a non-secretor.

The prevalence of Bombay phenotype has been reported to be 1 in 7600 individuals.⁴ Oh is used to identify the Bombay phenotype. Rarity in availability of classical Bombay phenotype (Oh) has also been documented.⁵ The donor to patient ratio being 1:4, it is difficult to meet the demand and supply ratio.⁶ Though Bombay and para-Bombay phenotypes are very rare blood phenotypes, this case highlights the significance of corroborating cell grouping and serum grouping results. It also emphasises the need to use antisera to the H antigen in all blood grouping procedures.

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