Coombs Test

A **Coombs test** (also known as **antiglobulin test** or **AGT**) is used in immunohematology and immunology. There are two Coombs tests:

I. D**irect Coombs test** (**DCT)** or **direct antiglobulin test** (**DAT**)
II. **Indirect Coombs test** or **indirect antiglobulin test** or **(IAT**).

D**irect Coombs test** is used to demonstrate the **sensitization** of RBCs *in vivo* with IgG antibodies and/or complement components (C3b, C3d and C4).

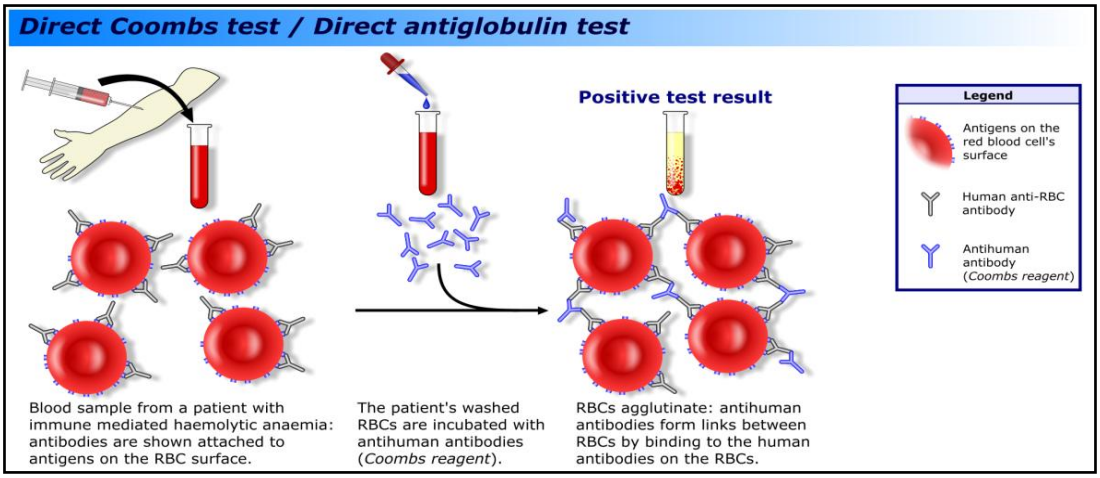
The Application of this test:

- Hemolytic transfusion reactions
- Hemolytic disease of the fetus and newborn
- Autoimmune hemolytic anemia
- Red blood cell sensitization

Procedure:

1- Blood sample is taken
2- the RBCs are washed(with normal saline) to removing the patient's own plasma.
3- Incubated with antihuman globulin (also known as "Coombs reagent").

The result: If this produces agglutination of RBCs, the direct Coombs test is positive, a visual indication that antibodies (and/or complement proteins) are bound to the surface of red blood cells.



The indirect Coombs test:

Detects antibodies against RBCs that are present **unbound** in the patient's serum. This test is performed to detect presence of Rh-antibodies or other antibodies in patients serum in case of the following:

a. To check whether an Rh-negative women (married to Rh-positive husband) has developed Anti Rh-antibodies.
b. Transfusion of Rh positive blood
c. Pregnancy, if infant is Rh positive (if father is Rh-positive)
d. Abortion of Rh-positive fetus.

Procedure

1- Serum is extracted from the blood sample taken from the patient.
2- Then, the serum is incubated with RBCs of known antigenicity; that is, RBCs with known reference values from other patient blood samples.

The result

If agglutination occurs, the indirect Coombs test is positive.