A THIRD EXAMPLE OF THE BLOOD GROUP
ANTIBODY ANTI-k

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Levine, Wigod, Backer, and Ponder (1949) and Levine, Kuhmichel, and Wigod (1952) have
described two examples of an antibody, "anti-
Cellano," which reacts with all blood samples
except those from individuals belonging to the
rare genotype KK. The first example was found in
a woman whose infant had mild haemolytic
disease of the newborn; the second was found in
a patient who had received several transfusions.
The first serum agglutinated red cells suspended
in saline, reacting most strongly at 37° C.; the
second serum gave weak agglutination in saline
but gave distinct reactions when the indirect
Coombs test was used. The present note records
the detection of a third example of anti-k.

Case Report

The patient, Mrs. G., had been well until 1947;
much more than 10 years before that she had had three
normal pregnancies. In 1947 she had a haematemesis
and received a transfusion of blood from two donors.
In 1949 she had a partial gastrectomy, and at operation
was found to have a malignant ulcer. No
further transfusion was given at this time. In September,
1951, a laparotomy was performed; numerous
secondaries were found in the peritoneal cavity
and the abdomen was closed. Before operation the pa-
ient received a drip transfusion of 2 pints of group
O Rh-negative blood. During the operation there
was considerable haemorrhage, and, as no fresh RH-
negative blood was immediately available, Rh-positive
blood was used, one bottle being transfused during
operation and a second bottle after operation. The
total time taken to transfuse the four bottles of blood
was about 12 hours. The red cells of all the four
bottles appeared to be compatible with the patient's
plasma in vitro. During the day after transfusion
only about 2 oz. of urine was passed, and, on the
following day when the patient was catheterized,
12 oz. of heavily pigmented urine was passed.
During the next few days the patient passed only
1 to 3 oz. of urine a day, and five days after opera-
tion her blood urea level was found to be 306 mg./
100 ml. She died on the seventh day after operation.

Because the patient developed anuria it was
suspected that incompatible blood might have
been given and the compatibility tests were re-
peated. At the same time samples were submitted
to this Unit for investigation. These showed that
the pre-transfusion sample of serum contained
anti-D with a titre of 8 in albumin. The serum did
not agglutinate D-positive cells suspended in
saline, though it sensitized them strongly to an
anti-globulin serum. A sample of serum taken
six days after transfusion had an anti-D titre of
8 in saline and 1,024 in albumin. In the course of
testing this latter sample it was observed that
unlike the pre-transfusion sample of serum, it
reacted with D-negative blood samples. It was
concluded that a further antibody had developed
in the patient's serum as a result of the last trans-
fusion. This antibody had a titre of 2 in saline
and 4 in albumin, and was found to be more
destructive at 37° C. than at lower temperatures. The
serum reacted with six out of six group O Rh-
negative samples whose full blood groups were
known, and it was apparent that the antibody
could not be one of the common ones. It was not
possible to test the red cells of the patient
because in the meantime she had died. It seemed
possible that the antibody might be anti-k, and, since
no Rh-negative donors of the type KK were
available, it was necessary to isolate the antibody.
This was done by adsorbing it on to Rh-negative
red cells at 37° C. and then eluting it off at 56° C.
into group AB serum. The eluate was tested
against a panel of red cells of known types using
the anti-globulin technique. Twenty-two blood
samples were tested, of which three were KK.
Of the 19 samples which reacted, 16 belonged
to the genotype kk, and three to the genotype Kk.
The three samples which did not react all belonged
to the genotype KK. These findings provide very
strong evidence of the presence of anti-k in the
original serum (p = 0.001).
Summary

A third example of anti-k is described. The antibody developed after transfusion in a patient who had previously had three pregnancies and one transfusion. The antibody was weakly active in saline and albumin, and could best be detected by the indirect anti-globulin test.

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References
