

# Sonoclot Guided Blood Product Transfusion in Major Surgeries - Case Report

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## 1. Introduction

Massive haemorrhage is a major cause of morbidity and mortality in major surgery. As blood loss continues, coagulopathy will become evident. Routine diagnostic tests do not detect the cellular element. Sonoclot analysis provides a comprehensive evaluation of clot formation, retraction and Platelet function.

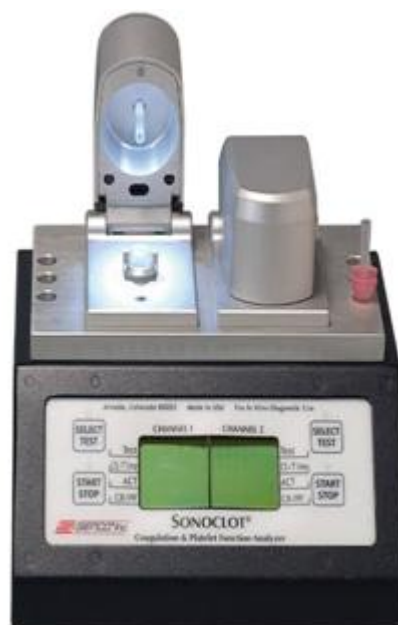
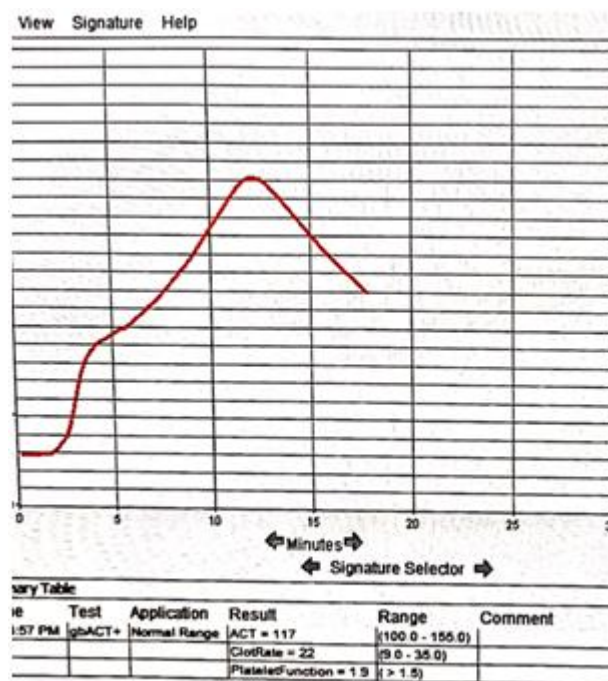
## 2. Case Report

A 50yr old female weighing 75kg k/c/o Ca. Ovary stage 2C posted for Cytoreduction Surgery +HIPEC. She's newly diagnosed Hypertension and not on any medication. Patient was not on Platelet and anticoagulant medications. Hb was 9.2gm/dl and 1pint prbc transfused preoperatively. Other routine investigations were WNL. Intraoperatively 1 pint PRBC, 8 pints plasmolyte, 4 pints stereofundin, 3pints RL, 1pint NS and DNS was given. ACT done after 6 hrs of surgery.

## 3. Method

The Sonoclot analyzer consists of tubular disposable probe mounted on an ultrasonic viscosity transducer. It immerses in a cuvette containing 0.4 ml of patient's whole blood. The probe vibrates 1 um vertically at 200 Hz. The increasing viscous drag due to formation of fibrin strands impedes its vibration and increases the intensity of clot signal. Resulting in typical Sonoclot signature depicting the following variables:

- ACT (Time until thrombin generation and beginning of fibrin formation)
- Clot rate (Percentage of peak amplitude / unit time depicting rate of fibrin formation).
- Platelet function depicts function of platelets and interaction with fibrin and plasmin.



## 4. Discussion

Bleeding can occur as a result of surgery or due to problem with the blood clotting process. Sonoclot differentiates abnormal bleeding and clotting disorder.

Sonoclot signature gives a more comprehensive overview of clotting cascade as a process. Impairment of coagulation was due to large volume shift, protein loss with high fluid turn over and possibly the hyperthermic chemotherapy. Global coagulation can be assessed with viscoelastic method.

The possible advantages over other methods like TEG, ROTEM is the initial phase of coagulation can be assessed.

## 5. Results

Results are obtained in 12-15 mins. The requirement of blood sample is 0.4 ml for the real time signature, which forms a permanent record. This test is simple, easy to start and runs by itself and requires little service. Routine blood clotting indices such as PT, APTT, TT reflect single stage of information in the process of coagulation cascade. Platelet count gives normal platelet function.

In our case, ACT is 117, clot rate 22 and platelet function 1.9. Therefore Noclinical significant coagulopathy during major surgery with the guidance of sonoclot.

## 6. Conclusion

Sonoclot analysis is easily performed, reproducible method for coagulation monitoring and not to expose the patients to the risks of unnecessary transfusion of blood products.

## References

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