

Edexcel GCSE

History B (Schools History Project) Unit 3: Schools History Project Source Enquiry Option 3A: The transformation of surgery, c1845–c1918

Tuesday 7 June 2011 – Morning

Sources Booklet

Paper Reference

5HB03/3A

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Background information

One of the major reasons why early surgical operations were often unsuccessful was massive blood loss. In the nineteenth century increased efforts were made to deal with this problem but success was limited until the beginning of the twentieth century.

This paper presents you with sources about attempts to fight blood loss and gives you the opportunity to decide for yourself why progress was made in the period before 1918.

Source A: A painting of a surgical operation from the first half of the nineteenth century. It was not unusual for operations to take place in the home at this time.



Source B: From *Blood and Guts, A History of Surgery* by Richard Hollingham, published in 2008. Hollingham is a scientific journalist. Here he is describing an amputation in the 1840s.

The surgeon, Mr Liston, clamps his left hand across the patient's thigh, picks up his favourite knife and in one rapid movement makes his first cut. An assistant immediately tightens a tourniquet to stem the blood. As the patient screams with pain, Liston puts the knife away and grabs the saw. With an assistant exposing the bone, Liston begins to saw through it.

Suddenly, the injured leg drops into a waiting box of sawdust. Liston, however, is still busy, tying off the main artery of the thigh and then tying off other smaller blood vessels, at one point even holding the thread in his mouth. As the tourniquet is loosened, the flesh is stitched.

The operation is over. And it has taken just 30 seconds.

Source C: From a nineteenth century article about surgery, by Doctor Leacock.

Transfusion is not needed to deal with moderate blood loss from surgery or wounds since other remedies will do. But when the blood loss is severe and other methods won't work, for example when a soldier is at the point of death from loss of blood, what reasons are there for not using transfusion as a last hope to save a life?

Source D: A drawing published in a medical journal. It shows a direct blood transfusion from a husband to his wife in 1882.



Source E: From *A Short History of Blood Transfusion* by P Learoyd, published in 2006 by the Leeds Blood Centre.

In the nineteenth century, many people believed that transfusions were dangerous and that they may have caused the death of some patients on which they were used. They also claimed that most of the patients who had benefited from transfusions would have recovered anyway. However, some doctors argued strongly in favour of transfusions, noting that the dangers of blood loss were far greater than the possible danger from transfusion.

Source F: From the records of Joseph Lister. He is describing the use of catgut ligatures in 1881 to tie off blood vessels.

It is clear that there is a risk in using silk as a ligature even if it has been soaked in carbolic acid first. This means there are serious reasons why it should not be used. If catgut is used antiseptically, it is easily absorbed and does not cause the problems which silk does.

Source G: From *Medicine and Health through Time*, a history textbook published in 2009.

The first breakthrough came with the discovery of the different blood groups in 1900. Karl Landsteiner, a doctor from Austria, identified the blood groups and demonstrated that some blood groups were incompatible with others.

However, although blood transfusions were now possible, the patient and the donor had to be in the same place. So blood transfusion was possible, but it needed an emergency to make it more commonly used and to solve the problem of storing blood for later transfusion. That emergency was war – the First World War.

Source H: A photograph of wounded soldiers in a field hospital receiving blood transfusions from bottled blood supplies towards the end of the First World War.



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