

Four major problems for surgeons

BEFORE 1840

Operations were only attempted when it was a matter of life and death and the success rate was low.

PAIN

Opium, henbane and mandrake came from plants and they could help to deaden the pain a little. Pare did find that he could reduce pain slightly by tightly binding the limb that was to be cut off. Speed seemed to be the only answer.

INFECTION

Doctors had no idea of the existence of germs. Most patients died of blood poisoning as doctors did not sterilise their instruments.

BLEEDING

Surgeons used to pour boiling oil over wounds or apply a hot iron to stop bleeding. Pare did begin tying up the ends of cut blood vessels with silken threads. This was less painful than the hot iron but it often still caused wound infection.

REPLACING LOST BLOOD

Some doctors did try replace lost blood by making patients drink blood. Harvey's work should have made them realise the stupidity of this. Some experiments were made putting animal blood into a human's veins. These experiments failed. Human to human transfusions were sometimes successful but, all too often, the receiver of the blood died.

1840 - 1890

PAIN

In the 1840s American doctors and dentists experimented with nitrous oxide (laughing gas) and ether. European doctors read of their successes and tried them. Nitrous oxide was not powerful enough for some operations and ether caused lung irritations and coughing. James Simpson experimented with other substances and discovered that chloroform was a better anaesthetic. To make sure that the muscles relaxed patients had to be deeply unconscious. Some patients did not wake up.

INFECTION

Perhaps the most dangerous place to have an operation was in a hospital. Until the work of Pasteur in the 1860s doctors did not realise what damage microbes could do. Most doctors would not take his ideas seriously until the 1880s. Surgeons would operate in dirty old clothes, using dirty instruments in dirty operating theatres. Lister read of Pasteur's work and thought it was these tiny organisms which were killing so many of his surgical patients. He used a spray of carbolic acid to kill these microbes.

BLEEDING

Lister began the use of sterilised catgut for tying blood vessels. As this was germ free it could be absorbed by the body. The wounds healed more quickly.

REPLACING LOST BLOOD

Experiments with blood transfusions still failed.

1890 - 1990

PAIN

Anaesthetists now use a mixture of gases to avoid bad reactions. Injections can relax the muscles so that less anaesthetic is needed. Local anaesthetic can reduce pain in a certain area so that doctors can operate when the patient is conscious.

INFECTION

Lister's example is not followed today. Doctors soon realised that asepsis (having no germs) was better than antiseptics (fighting germs). They use sterilised instruments which can be boiled, gowns, masks and gloves. Drugs like penicillin can be used to fight infections from within the body.

BLEEDING

Most of the problems with bleeding have been solved.

REPLACING LOST BLOOD

In 1901 doctors realised why some blood transfusions failed. They found that there were four main blood groups and only some of these could be given to patients with a different blood group. A National Blood Transfusion service was set up. Blood cells can be separated from the liquid part (the plasma) and then preserved in a glucose solution.