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Tissue Blocks and Slides

– an information note

April 2001

Foreword

This leaflet has been prepared by the Retained Organs Commission, a Special Health Authority established by the Secretary of State to oversee the proper return of retained organs and tissues to families who request it, and to address the question of historical and archived collections from post mortem examinations.

The Commission hopes that this leaflet will be helpful in providing information on a number of frequently asked questions about human tissue blocks and slides.

The Commission is grateful to all those - in NHS Trusts, voluntary workers and Universities - who contributed to or commented on the text of the leaflet.

Why are blocks and slides made?

- Although some information can be obtained from looking directly at organs in a post mortem examination, often the only way to understand what is going on is to look at part of an organ under the microscope.
- Examination of part of an organ and the cells it is made up of may provide valuable clues about the progress of any disease or injury leading to death and whether any treatment has been working.
- This may explain why a patient died and help the bereaved family and the patient's doctor understand better the cause of death.
- Knowing what went wrong may also help to improve the treatment given to other patients with the same condition.
- Some diseases can run in a family - genetic disease - and looking at slides can be important for other members of the family - including for children not yet conceived.
- They may help everyone because they lead to improvements in diagnosis and treatment by use in clinical audit, teaching and research.

How are blocks and slides made?

- Small pieces of organs are removed and placed in small, usually plastic, boxes.
- Normally about 20mm (less than one inch) square and about 5mm (under one quarter of an inch) thick. Even so, substantial parts of small organs from very small babies – even whole organs in exceptional cases – may be contained within a block.
- The tissue is chemically treated to remove water, which is replaced with wax.
- These tissue '**blocks**' become hard, so that thin sections can be cut with a sharp knife.
- These sections are *very* thin – ten times thinner than a hair.
- They are placed on glass **slides** and stained with special dyes to enable the cells to be examined under a microscope. More than one slide may be cut from a block.
- These techniques are no different to those used to examine tissue from live patients.

Why are blocks and slides *kept*?

- Sometimes a post mortem shows that the doctors were mistaken about the patient's health problems. The feedback provided by post mortem examinations helps to improve all doctors' practice for the benefit of patients in the future.
- Pathologists regularly review each other's practice – including reviewing slides on an anonymous basis – to ensure that high professional standards are maintained – this is called clinical audit.
- When a new disease or health problem emerges, examination of tissue on a wide scale may provide clues about how and why the disease emerged – and how to tackle it. This happened with new variant CJD following the BSE scare.
- Ways of examining tissues improve year on year. In cases of genetic disorders, looking back to the tissue of deceased family members may help make a diagnosis in other living members of the family so they then receive the right treatment.
- Slides are regularly used in teaching to enable doctors, and particularly pathologists, to be trained effectively. They need to know what abnormalities can be present in the tissues so that future cases can be diagnosed correctly.

In all these ways, the taking of tissue blocks and slides – and their retention in the hospital's pathology archive – can benefit the deceased patient's family and the wider community by improving diagnosis, treatment and the understanding of health problems. As such they make up an important part of the medical records kept by the NHS and their use in teaching and research helps to advance medical science for the good of all. The taking of tissue blocks and slides and their retention is normal practice all over the world.

How are blocks and slides kept?

- Blocks and slides are normally labelled with a specific number, which enables the patient from whom they were taken to be identified.
- However those slides used in clinical audit and teaching – and in some research studies – are anonymised and cannot be linked back to the original patient in order to preserve confidentiality.
- Most are kept in drawers in special cabinets designed specifically for this purpose, which are kept safely and securely in hospitals or research laboratories.

Are these blocks and slides being kept *legally*?

- Blocks and slides are originally taken as part of the post mortem process. This may be either a Coroners' post mortem (which does not require relatives' consent) or a hospital post mortem (which does).
- Following a Coroners' post mortem, the blocks and slides must be retained as long as they have any bearing upon determining the cause of death, including the resolution of any legal proceedings relating to the death.
- In practice, blocks and slides are often retained long after the Coroner is satisfied about the cause of death, for the reasons already set out.
- Although this is not considered illegal, concern following recent problems with organ retention means that the legal framework is being reviewed, to clarify when material **should** be kept and for how long.
- Following a hospital post mortem, performed with the agreement of relatives, it is now accepted that their consent or otherwise to the retention of organs or blocks and slides should have been obtained at the time.
- Again, the recent concern about organ retention means that the whole issue of consent and tissue retention relating to hospital post mortems is under review.

What happens now?

- Because of the concerns of relatives, it has been decided that blocks and slides should be returned for respectful disposal if the relatives want to do this.
- The large size of some of the archives means that checking whether particular blocks and slides have been sent there may take a long time, partly because the staff who would have to do this are also involved in diagnosing disease in living patients.
- There are two alternatives to returning this material to relatives for burial or cremation:
 - Relatives may agree that the hospital can continue to keep the blocks and slides so that they can be re-examined if need be or used in teaching or research to benefit other patients.
 - Or relatives may ask the hospital to respectfully dispose of the blocks and slides.
- Past practices have not always properly recognised the need for a respectful approach to disposal. In future, however, arrangements will be made with crematoria and cemeteries to provide a more respectful service.

Further questions?

- Please call ROC Information & Helpline number on freephone 0800 0920203
- or visit our website: www.nhs.uk/retainedorgans//index.htm.

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