

Use of extracted teeth in research

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Excised body parts and tissue are usually disposed of as medical waste but may be retained for use in research, perhaps with a profitable outcome. For ethical and legal reasons the patient's consent is generally required before excised bodily material can be used in research. Does this apply to extracted teeth also?



PHOTODISC

A researcher wanting to use enamel from extracted teeth in his work on dental enamel recently rang to ask me whether teeth extracted at a dental hospital during a therapeutic procedure may be later used in research without consent from the people from whom they came. The research ethics committee in his institution wanted advice on whether it is legally or ethically necessary to obtain consent, either at the time when the teeth are extracted or by re-contacting people afterwards and asking for their consent at that time.

NHMRC guidelines

This may seem a simple question and it is one that, in practice, might be sensibly resolved by applying the principles of the National Health and Medical Research Council's recently revised *National statement on ethical conduct in research involving humans* (1999).¹ Clause 15.7 of this Statement states that specific consent is generally required before tissue samples are used in research where the research 'may lead to harm, benefit or injustice to a donor', if they have been obtained for or stored following clinical investigations,

held in archives or banks, or removed in the course of a clinical procedure and are not required for any clinical purpose. (There was no equivalent provision in the NHMRC's *Statement on human experimentation and supplementary notes 1987* nor in the revised version of that statement issued in 1992. The NHMRC circulated later in 1992 and in 1993 a discussion paper on the use of human tissue samples in research, gathering material for the next revision, the 1999 Statement.)

A human research ethics committee may waive the need for consent, taking into account among other things 'the nature of any existing consent', whether it is 'impossible or difficult or intrusive to obtain specific consent', 'proposed arrangements to protect privacy' and 'possible commercial exploitation of derivatives of the sample' (clause 15.8).¹

Legal aspects

The law, however, is far less clear. There are two avenues of response: firstly, a comparison between extracted teeth and stored body parts or tissue and, secondly, the legal notion of abandonment.

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Extracted teeth as stored excised body material

The legal status of stored body parts or tissue was considered recently by Professor Ian Kennedy, in his role as the chairman of the Royal Bristol Infirmary Inquiry in the UK.² The Inquiry concerned the use in research and teaching of organs and tissue removed during postmortem examination of children who had died in the hospital. It recommended that all 'bodily material' – which was defined to include tissue on slides as well as organs and body parts – removed during a post-mortem examination should be returned on request to parents or next of kin for burial or cremation.

The Inquiry did not consider in detail the legal implications of this recommendation, especially in relation to property interests in the body parts and tissue, as they were beyond its terms of reference. However, if parents and next of kin are entitled to have body parts and tissue returned on request after postmortem examinations, it might be argued that institutions holding such material after acquiring it in other ways cannot legally or ethically use it in research without consent from the people concerned. Alternatively, one might say that body parts and tissue removed during post-mortem examination must be returned to the next of kin for burial or cremation, whereas bodily material acquired in other ways does not have to be returned before burial or cremation.

On the other hand, the use in research of extracted teeth might be distinguished from the use of organs and tissue obtained from postmortems. People are probably less likely to want back their own extracted teeth than they are the bodily material removed during postmortem examinations of their deceased loved ones. Also, extracted teeth do not present the same public health issues as excised body parts and tissue and therefore probably do not have the same need for proper disposal. In addition, the privacy issues with discarded

teeth may be considered less significant than with excised body parts or tissue as tooth enamel is not identifiable by DNA testing (although the pulp of the tooth is as identifiable as any other tissue). However, do teeth extracted during a post-mortem examination have the same legal status as other bodily material removed during postmortems? Must they be returned to relatives on request?

Extracted teeth as abandoned body parts

Another, perhaps more persuasive, argument in favour of allowing discarded teeth to be used in research without consent, draws on the legal notion of abandonment. Even if people are considered to have a property interest in material removed from their bodies, this interest would be regarded as abandoned by their intention, either express or implied, to claim no future interest in it. Thus, if I sell my hair to a wigmaker, my intention is to transfer my 'property' to a third party for profit. If, on the other hand, I have a tooth removed to alleviate toothache, my intention is to relieve the pain. I have no further interest in the tooth – if asked, I would say, 'throw it out'.

Philosophers may say that the issue cannot be so simply resolved. They may talk about expectations. If my expectation is that the tooth will be thrown out in the garbage, I may say, 'throw it out. I don't want it'. If, on the other hand, the tooth is to be used in research, perhaps with a profitable outcome, I may say, 'in that case, I want to be consulted, or paid a fee for agreeing to donate my tooth, or even a share in the ultimate proceeds of the research on my tooth'.

So how important is it to consider a person's expectations when assessing their intention, express or implied, to abandon excised bodily material, which can range from an amputated leg, through tissue removed for pathology tests to an extracted tooth? Consider my dilapidated chair placed on the nature strip for collection

by the council for disposal. A passer-by takes it, recognising it as an antique. Should I be entitled to demand it back because my initial intention to abandon it was not 'informed'? What if the chair has been repaired and reupholstered, and has thereby greatly increased in value? Am I entitled to take this unexpected windfall on the basis that I 'owned' the chair all along, never having truly abandoned it? I think probably not – once something has been abandoned, it cannot be reclaimed. However, if I did still 'own' the chair, could the person who did the work on it legally recover payment for the materials and work? (The answer here is probably yes, despite the lack of a contract between the parties, on the application of legal principles of unjust enrichment.)

This analogy shows the perils of looking too deeply into people's expectations when deciding whether they have abandoned their discarded property. In my view, the chair put out for rubbish collection has been abandoned and anyone who picks it up and does work on it is entitled to keep the profits. The same applies to my tooth that was extracted to relieve my toothache.

Would consent be 'informed'?

For the record, I told the researcher who called me that there are unlikely to be legal ramifications if stored extracted teeth are used in research. However, to assuage community concerns, it might be wise in future to have a sentence in consent forms for dental surgery stating that extracted teeth may be used in dental research. Whether such a 'consent' would be adequately 'informed' to meet legal requirements if an issue arises in the courts is a question for the future.

Series Editor's comment

If you gave me a piece of coal thinking I needed it as fuel to keep my family warm, but instead of burning it I used a process I had devised to turn it into a diamond,

are you entitled to a share of the value of the converted coal – that is, the value of the diamond – or just the value of the coal as it was when it left your possession? Indeed, have you any rights at all because when you gave me the piece of coal you impliedly gave up all property rights? Ah, the stuff the law has to decide!

There are many legal precedents holding that your body, or parts thereof, are not your legal property. Of course, in the USA, you can sell your blood – but that is a tissue that can be regenerated. Can you sell your kidney? That may be a victimless crime in the sense that neither buyer nor seller is going to complain so how will the law enter the equation? In the UK in the early 1990s, a senior urologist and a senior renal physician were deregistered for soliciting the purchase of kidneys from the poor in a third world country, and using them for transplantation to very wealthy patients. In addition to paying for the service of transplantation, the patients also paid a considerable amount for the kidney. This was considered unethical, and hence the doctors were struck off – but was it illegal? The profits made by the doctors may have been huge, but the donors also gained by the money they received in payment making them wealthy by their local standards. And anyway, who needs two kidneys?

As well as selling a body part, you can also rent it out. Surrogate mothers ‘rent’ the use of their uterus. What about the whole body? In life, prostitutes do not so much ‘sell’ their bodies as ‘rent’ the use of them, within negotiated limits, for a period of time. After people die, however, their executors do not ‘own’ the body but merely have custody of it for the purpose of arranging its proper disposal by burial or cremation (or cryogenic preservation, if that was the deceased’s expressed wish).

If a patient does not own his or her body but can sell or rent parts of it, when he or she agrees to have a part removed

for a good medical reason and makes no claim to the excised bit or any demand as to its disposal, can he or she later have a change of mind and demand payment when you have turned the part to your profit? That profit may be monetary, for example you could have used it to make a commercially profitable cell line, but it may be less tangible, such as the professional acclaim achieved from publishing a landmark paper.

What is the answer? Well, why not ask the patient? A lot of children ask to see their removed teeth, tonsils or appendix. Perhaps you do not routinely ask patients whether they would like to take possession of their uterus or colon after it has been removed, but if you do have it in mind to use the tissue and not just dispose of it, then prudence would suggest seeking the patient’s consent. If the patient says nothing and you say nothing, there will be the reasonable presumption that the excised part will not be ‘converted’ to your benefit but disposed of as medical waste. If you know that presumption to be incorrect, then you have a duty to inform the patient.

However, I have got to say the answer to the question is obvious in general practice when it relates to those Vegemite and jam jars that patients bring in containing specimens of their urine or phlegm – or worse. **MT**

References

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