

Merits of the Autopsy in Determining Tissue Suitability

By Daniel Schultz, MD



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The autopsy serves as the gold standard of final medical diagnosis. Even under the best circumstances, medical diagnoses in life are a list of potential differential diagnoses, with one possibility at the head of the pack. After death, the differential at autopsy can narrow substantially.

The Tissue Bank medical director evaluates the tissues for final suitability. Donor medical records, the medical/social questionnaire

and any subsequent donor testing all play vital roles within the quality assurance process. Testing can also include pre-processing cultures, review of the physical assessment and serological and nucleic acid testing of the qualified donor blood specimen for infectious diseases (such as viral hepatitis, HIV, HTLV, and syphilis). If all signs are negative for high risk issues, the tissue may subsequently be released for processing/distribution.

There are times when the circumstances of the donor's past, such as a cured malignancy, a suggestion of an infection like pneumonia or the mention of a nodule on chest x-ray, comes to light after the medical records have been

obtained, following initial verbal report of the case. Without the benefit of the autopsy in such a situation, there may be no alternative but to discard the tissue based on those ominous but technically unproven issues. The worst case phenomenon tends to guide my decisions.

Many tissue banks will allow for donation in individuals with a history of malignancy, provided there is some period of disease free follow-up with a physician. Many tissue banks take this history of cured cancer as the final word, and never consider ordering a private autopsy. Some tissue banks may not perform elective



autopsies, relying only on those autopsies that happen to be provided for reasons of traumatic cause by the medical examiner or coroner. We take a more conservative approach. LifeLink mandates that such a setting requires an autopsy to evaluate

for any residual indication of malignancy. I regard the autopsy as a very useful adjunct in that situation. The autopsy tends to mitigate those suspicions and allows final objectivity in decision making.

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Tissue Connection Trivia

Correctly answer this quarter's question and you'll be entered to win a \$25 gift certificate to Best Buy.

To enter, e-mail your answer to: contactinfo@lifelinkfound.org. Please provide your full name, hospital and phone number.

Which of the following is a favorable reason for a surgeon to choose allograft vs. autograft?

- A. reduces cost
- B. shortens O.R. time
- C. less patient morbidity
- D. quicker recovery period
- E. all of the above

Only correct answers will be entered into the drawing. One winner per quarter. The winner will be notified and posted in the next Tissue Connection.

LifeLink Tissue Bank has always respected the value of the autopsy as a tool for tissue donation. As a medical examiner in Tampa, I considered that policy the “norm.” When I moved outside the state for about eight years and worked with other tissue banks, I grappled with the fact that certain issues potentially clarified at autopsy were simply not addressed.

We are one of the exceptions with regard to the autopsy. LifeLink has always respected the value of the autopsy as a tool for tissue donation.

Infections are the primary concern in tissue banking. Assuming an individual suffers an event such as a stroke or a serious injury, the first twenty-four hours after the event are not likely going to lead to infectious complications.

A little more time to that terminal stay and, in my opinion, it creates a greater need to look closely for indication of a complicating infection. Fevers and white cell elevations are common in individuals with brain injury or individuals with trauma and some other natural diseases. Without the autopsy, the worst case ensues in my mind, leading me to consider sepsis, systemic inflammatory response syndrome, a serious pneumonia or a kidney infection, among others. Most of the time, those individuals are responding to the injury/primary process rather than a true systemic infection and the autopsy will “save the day.” This isn’t always the case, however, and that’s why LifeLink Tissue Bank requires them.

No matter how safe the graft, surgery always includes the possibility for an adverse outcome. It could be tissue swelling, drainage, pain, etc. Imagine the tissue recipient who experiences a little redness and irritation around an operative site. At LifeLink, we take all reports of adverse reaction seriously, carefully reassessing the file

to look for any indication that the adverse event might have come from the donor. It is extremely important, as tissues distributed elsewhere may also be involved. The autopsy can serve as the final word demonstrating a lack of an infectious condition in the donor. Fortunately in our history at LifeLink, we have not had a documented disease transmission from an allograft.

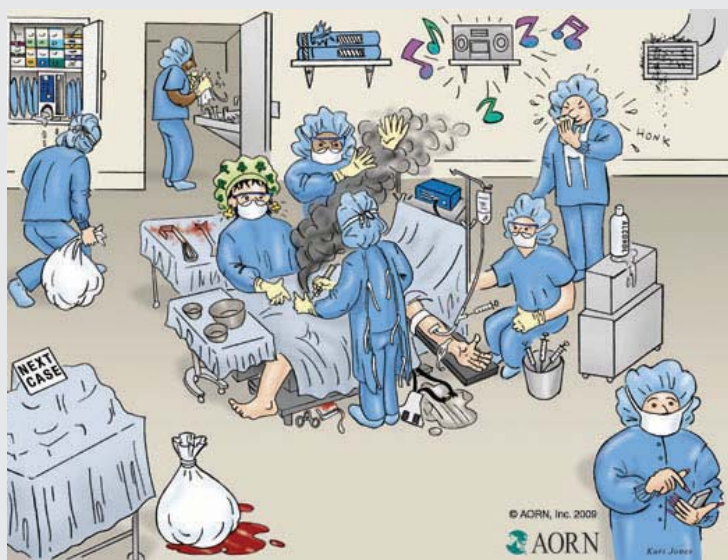
There are times when the thought of allowing an autopsy is distasteful to a family. Understanding the benefits, such as capturing otherwise preventable heart disease, cancer, infection, etc. on a donor can often make a family more comfortable with the prospect. It can also provide the family with a final sense of closure. I came to LifeLink after working as a forensic pathologist for about eleven years. I admit a bit of a bias in choosing that high standard of autopsy testing on our tissue donors, especially when it comes to donors with histories suggesting the potential for a more sinister condition.

A final word on tissue suitability in general; when I sign a tissue for release, I consider the recipient might be my wife, my parent, a child, a friend. Our tissue must always be safe for the recipient. One tissue donor has the potential to help as many as 50 people. For many donor families, that provides a level of comfort and solace.

Dr. Schultz is the Vice President and Medical Director of LifeLink Tissue Bank. He also serves as Microbiology Lab Director for LifeLink Tissue Bank and Medical Director of Infectious Disease Testing Components for the LifeLink Transplantation Immunology Laboratory. He is also an Associate Medical Examiner for Florida districts 12 (Sarasota/Bradenton) and 22 (Port Charlotte).

AORN CORNER

Each year for Congress AORN creates a cartoon that demonstrates breaks in recommended perioperative technique. The cartoons are created by AORN graphic designer Kurt Jones and AORN perioperative nursing specialist Joan Blanchard, RN, MSS, CNOR, CIC. Can you find the 25 breaks in technique in this year’s cartoon? Answers available at www.aorn.org.



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Introducing...

Alternatives to Bone-Tendon-Bone for ACL reconstruction

Anterior Cruciate Ligament (ACL) reconstruction has increasingly become a popular procedure in the US to treat multiple ligament injuries resulting from car accidents or sports trauma. Due to the patient morbidity of autograft, allograft has been introduced as an alternative.



The patella tendon, commonly referred to as Bone-Tendon-Bone (BTB), is the most frequently used allograft for ACL replacement and the strongest biologic substitute.¹

Because of the high rate of success and subsequent increase in use of

this particular tendon allograft, an adequate number of appropriate donors is often not available to meet the demand for these grafts. To address this issue, many surgeons support the use of various allograft tissues for ACL surgical reconstruction.



The following potential allograft sources for ACL reconstruction have been evaluated in multiple studies and identified as viable alternatives in grafting the tendons:

- Achilles tendon
- Semitendinosus and gracilis tendons
- Tibialis anterior
- Tibialis posterior
- Peroneous longus



Studies have concluded that these tendons show excellent biomechanical strength and properties when compared with historical data evaluating other graft sources.



1. Flahiff CM, Brooks AT, Hollis JM, Vander Schilden JL, Nicholas RW. *Biomechanical Analysis of Patellar Tendon Allografts as a Function of Donor Age*. Am. J. Sports Med. 1995;23:354.
2. Haut Donahue TL, Howell SM, Hull ML, Gregersen CG. *A Biomechanical Evaluation of Anterior and Posterior Tibialis Tendons as Suitable Single-Loop Anterior Cruciate Ligament Grafts*. Arthroscopy. 2002;18:589-597.
3. Pearsall AW, Hollis JM, Russell GV, Scheer Z. *A Biomechanical Comparison of Three Lower Extremity Tendons for Ligamentous Reconstruction About the Knee*. Arthroscopy. 2003;19:1091-1096.

Did you Know?

LifeLink recovers and processes all bone and soft tissue under aseptic conditions (non-irradiated) in accordance with American Association of Tissue Banks (AATB) standards as well as state and federal regulations from the FDA and the states of Florida, California, Maryland, and New York.

Special Announcements:

Tissue Connection Trivia Winner:

The winner of last quarter's tissue connection trivia question is Maria Canino, CST from South Florida Baptist Hospital. Congratulations to Maria for correctly answering the question! Originally from Mexico, Maria has lived in Florida for nearly 30 years and recently obtained her U.S. citizenship. She is married with three children and two grandchildren. In addition, Maria served as a clinical instructor at Erwin Technical School and has worked as an agency nurse in hospitals all over the state.

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Back at His Post

Sergeant Robert Pierce, allograft tissue recipient

Sergeant Robert Pierce followed in the footsteps of both his grandfather and father when he joined the Army in 1997, where he eventually



worked as a Blackhawk Crew Chief.

While serving his country in Iraq during late 2004, Robert experienced recurrent complications triggered by a rough helicopter landing. Not long after, while performing routine procedures before a flight mission, Robert felt intense pain throughout his neck and back. He was rushed to local emergency medical care and then flown back to the United States. Doctors diagnosed him with herniated discs, which pressed on his cervical cord and caused temporary paralysis on his right side. With the help of a tissue transplant Robert is back at his post, and no longer experiences

constant pain. While still recovering through physical therapy, Robert looks forward to getting back to the outdoor activities he enjoys and traveling around the world.



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