

Multi Tissue Recovery Note

Hospital: _____ Date: _____ TGLN #: _____

Patient Name: _____ MRN: _____

Recovery Agency: Trillium Gift of Life Network

Recovery Personnel (please print):

1. (Lead) _____
2. _____
3. _____
4. _____

The identity of the patient was confirmed along with the consent form. A physical assessment was completed and blood was drawn from the:

subclavian artery, femoral artery, jugular vein, heart, or N/A (pre-drawn samples available).

All IV lines, defibrillator pads, and tubes, etc. still attached to the patient were removed (in accordance with Coroner's directive, if applicable).

The following tissues were recovered (check all that apply):

- Skin, from the: posterior trunk posterior legs abdomen anterior legs
- Heart Valves, including pericardium and / or the descending thoracic aorta
- Bone and Connective Tissue, including the following:
 - Humerus R L Tendons of leg R L Achilles Tendon R L
 - Radius R L Femur R L Ilium R L
 - Ulna R L Tibia R L Hemi-Pelvis R L
 - Fascia R L Fibula R L Other _____
 - Osteochondral Tissue R L

The recovery of these tissues took place as described in the following pages.

After the recovery, the patient's body was rewrapped in the shroud and returned to the storage location from which it was retrieved.

Lead Multi Tissue Recovery Coordinator Name: _____ Date: _____

Skin Recovery:

The patient's body was placed in the prone position on the Operating Room table. A donut was placed under the face for protection.

The patient was washed with liquid soap and water and the skin retrieval site(s) were shaved, if necessary, to remove any hair. The patient was then scrubbed with chlorhexidine gluconate sponges. Sterile gauze was used to dry the patient.

Sterile gauze was used to apply a povidone-iodine solution, followed by an application of chlorhexidine gluconate. The operative area was prepped with sterile drapes and a 70% ethyl alcohol solution was sprayed across the entire operative area.

Sterile gauze was used to apply mineral oil to the retrieval areas.

An amalgatome was used to recover the skin in 10 cm wide grafts.

The skin grafts were placed in containers filled with Tis-U-Sol solution, and labeled with the assigned TGLN donor number.

The above process may also take place on the anterior aspect of the patient of the patient.

Heart Valve Recovery:

The patient's body was placed in the supine position on the Operating Room table. The chest, from the neck to the navel, was cleaned using a 70% alcohol solution and sterile gauze. A surgical scrub solution and sterile gauze were then used to further cleanse the area. Lastly, Povidone-Iodine solution was used to apply antiseptic to the area.

A median sternotomy or "Y-incision" followed by removal of the breast plate was underwent to enter the chest cavity. The pericardium was opened and the heart was exposed.

The inferior vena cava was transected at the junction to the right atrium. The right pulmonary veins were transected as distally as possible. The right pulmonary artery was transected at the hilum. The superior vena cava and innominate vein were exposed and transected. The neck vessels, the brachiocephalic, left carotid, and left subclavian arteries were exposed distal to the take-off from the aortic arch and transected. The heart was retracted rightward and superiorly and left pulmonary veins and artery were transected as distal as possible. The aorta was transected distal to the ligamentum arteriosus, completing the retrieval.

A large piece of pericardium was recovered.

If possible, the descending thoracic aorta was recovered by opening the left pleural space, resecting the lung medially and excising the aorta distal to the left subclavian artery. The intercostal arteries were transected 3 - 4 mm from the aorta and care was taken to avoid injuring the adjacent esophagus.

The heart was placed in a sterile bowl filled with NaCl Sterile Saline and gently massaged to introduce the liquid into the chambers of the heart. To drain the fluid, the heart was inverted gently. This rinsing process was repeated a second time with a new bag of NaCl Sterile Saline .

The chest cavity was sutured closed after the breast plate was put back into place.

Bone and Connective Tissue:

The patient's body was placed in the supine position on the Operating Room table.

The patient's body was washed with an antimicrobial scrub and water to remove any visible dirt and dried with non-sterile towels. The operative areas were prepped with a betadine solution and draped using aseptic technique.

Tissues were removed as described below (only those tissues checked above were removed):

The humerus was recovered through an incision in the anterior aspect of the arm. Sharp dissection was made through all the muscle layers to the humerus. The elbow was disarticulated by sharp dissection of all muscle and ligamentous structures. Similarly, the humeral head was disarticulated from the glenoid fossa.

To recover the radius and ulna, an incision was made on the ventral aspect of the arm from just below the elbow to the base of the hand. Sharp dissection of the surrounding muscles distally was done, taking care not to cut any major vessels. The ulna and radius were disarticulated at the proximal end. In order to remove the radius, the ulna was disarticulated from the radius and the articular disc of the distal radioulnar joint. Sharp dissection of the muscles continued in order to disarticulate the ulna from its distal attachments.

An incision was made that followed the contour of the iliac spine to the anterior superior iliac spine. The incision continued inferiorly along the midline of the thigh until approximately 10 cm proximal to the patella, when the incision then gradually continued medially to the patella. After passing the patella, the incision was continued laterally to the anterior and distal tibia, crossing the anterior aspect of the foot. The thigh was dissected to the fascia, dissecting the fascia away from the muscle layers. The largest piece possible was recovered by blunt dissection.

The muscles and tendons of the gracilis were identified. The muscle was transected mid-shaft and dissected down to the insertion point. The tendon was transected from the insertion point using heavy scissors. The same procedure was followed to recover the semitendinosus tendon, the tibialis anterior tendon, the tibialis posterior tendon and the peroneus longus tendon.

To recover the femur, there was sharp dissection through the thigh muscle area to the shaft of the femur distally until the quadriceps tendon was reached. Leaving the quadriceps tendon intact, a horizontal cut was made and sharp dissection around the distal femur continued. The femur was disarticulated from the tibia, leaving the quadriceps, patella, and patellar ligament intact on the tibia. Sharp dissection along the femoral shaft to its proximal aspect continued until the proximal femur and femoral head could be disarticulated from any surrounding attachments, and the femur removed.

When the tibia and fibula were recovered, the skin was dissected from the muscles surrounding the tibia. The tibia was disarticulated from the fibula at their proximal ends. The tibia was further disarticulated from fibula and malleolus at their distal ends, and removed. Sharp dissection of muscles surrounding the fibula continued, it was disarticulated from its distal attachments and removed.

With the major bones of the leg removed, the Achilles Tendon with Calcaneus and Talus was recovered by making a transverse incision through the gastrocnemius muscle, deep to the underlying skin. Blunt dissection was used to pull the gastrocnemius and associated Achilles tendon away from the skin inferiorly to its attachment at the calcaneus. Sharp dissection was used to separate the calcaneus and talus from the remaining bones of the foot.

To recover the ilium, the iliac crest was exposed by blunt dissection, being careful to maintain the integrity of the bowel. Muscle tissue was removed from the ventral and dorsal sides of the wing. Using an osteotome, the crest was transected at the sacroiliac joint and disarticulated. Any remaining attachments were removed as close to the bone as possible, and the ilium was removed. Alternatively, when the hemi-pelvis is recovered,

disarticulation takes place at the symphysis pubis, and the hemi-pelvis is removed with the acetabulum, ischium, and ilium all intact.

Each piece of tissue was cultured, and inserted into a sterile bag and wrapped with sterile wrap that was taped closed. Labels with the tissue bank donor ID were placed on the outside of the sterile wrap.

Great care was taken to reconstruct the patient's body. Prostheses and gauze or equivalent materials were molded to the proper form to replace the recovered bones and tendons. The muscles were closed, and the skin was sutured as tight as possible, to prevent leakage.

Osteochondral Tissue

Whole Shoulder

An anterior incision is made from mid clavicle to distal mid arm. The plane of dissection is between subcutaneous tissue and the superficial fascia. Cutting is minimized through muscles during initial incision in order to avoid any contact with the shoulder joint.

Tissue dissected around the clavicle and mid humerus to expose the bone circumferentially, taking care not to violate the integrity of the capsule. A transverse cut was made of the clavicle, then the humerus 4 - 5 cm below the shoulder joint; final dissection is proximally through the scapular neck, medial to the acromion joint. The fresh shoulder graft is removed as one piece with the shoulder joint surrounded by intact soft tissue, except for skin and subcutaneous tissue.

Whole Elbow

An anterior incision is made from distal upper arm to approximately 4 inches above the medial wrist. The plane of dissection is between subcutaneous tissue and the superficial fascia. Minimize cutting through muscles during the initial incision in order to avoid any contact with the elbow joint. Tissue dissected 4 - 5 cm above and below the elbow to expose the bone circumferentially.

A transverse cut was made of the humerus 4 - 5 cm above the elbow joint and a transverse cut of both the radius and ulna, 4 - 5 cm below the elbow. The fresh elbow graft is removed as one piece with the elbow joint surrounded by intact soft tissue, except for skin and subcutaneous tissue.

Whole Knee

The procedure starts by making a middle line incision from upper anterior third of the thigh to distal anterior part of the leg. The plane of dissection is between subcutaneous tissue and the superficial fascia. Minimize cutting through muscles during the initial incision in order to avoid any contact with the knee joint. Tissue dissected 4 - 5 cm above and below the knee to expose the bone circumferentially.

A transverse cut was made through femoral bone 4 - 5 cm above the patella and cut through tibia and fibula bones 4 - 5 cm below the tibial tuberosity. The fresh knee graft was removed as one piece with knee joint surrounded by intact soft tissue, except for skin and subcutaneous tissue.

Whole Ankle

A middle line incision is made from upper anterior third of the leg to distal anterior part of the foot. The plane of dissection is between subcutaneous tissue and the superficial fascia. Minimize cutting through muscles during the initial incision in order to avoid any contact with the ankle joint. Tissue dissected 4 - 5 cm below the knee to expose the bone circumferentially.

A transverse cut was made through tibia and fibula bones at least 4 - 5 cm above the ankle joint and distally through Lisfranc joint. The fresh ankle graft is removed as one piece with the ankle joint surrounded by intact soft tissue, except for skin and subcutaneous tissue.

Each osteochondral tissue recovered was swabbed for bacterial culturing. All exposed bone was wrapped with a sterile sponge or towel, each whole graft was wrapped in a sterile towel. Each whole graft was submerged in the packaging solution of Ringer's Lactate reconstituted with Cefazolin (1 g/L) and Bacitracin (50,000 U/L) inside a sterile plastic bag secured by twisting and knotting the bag.

Each bag with tissue was placed inside a second sterile bag which was labelled and secured by twisting and knotting.

Each tissue was then placed inside a third sterile bag and was secured by twisting the bag, goose necking the twist and securing with a zip tie.

Great care was taken to reconstruct the patient's body. Prostheses and gauze or equivalent materials were molded to the proper form to replace the recovered bones and tendons. The muscles were closed, and the skin was sutured as tight as possible, to prevent leakage.