Title: A Different Way, A Better View: Recovering the Hemi-Pelvis Anew!

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Background

A prioritized aim of recovery agencies is to minimize contamination through constant and consistent training, evaluation, and adjustments in processes and procedures. Microbial contamination of tissues can result in the discard of the precious gifts we are entrusted to recover, or worse, harm potential recipients. Because LifeGift noticed that the hemi-pelvis was a significant contributor to contamination rates and had recoveries that yielded partial hemi-pelvis recoveries, LifeGift needed to decrease contamination and increase the percentage of whole hemi-pelvis recoveries. We set out to resolve this problem by changing how we recovered the hemi-pelvis.

The hemi-pelvis is traditionally the most contaminated tissue due to its proximity to the bowel, and in part due to the recovery technique of the recovery personnel. The most widely used method of recovering the hemi-pelvis is using the incision referred to as the "shepherd's hook" incision, whereby a curved incision is made just superior to and following the path of the iliac crest, coming down the anterior aspect of the thigh, circumventing the knee, and terminating distally on the dorsum of the foot. We found that the shepherd's hook incision for the recovery of the hemi-pelvis presented challenges including but not limited to:

- Limited visibility and blind cutting that pose safety hazards
- Challenging recovery or limited graft recovery on larger donors
- Difficulty training newer staff due to limited visibility
- Increased likelihood to recover an incomplete hemi-pelvis
- Increased contamination potential due to bowel and bladder breaches, contact with the genital area, and more glove contact with abdominal skin

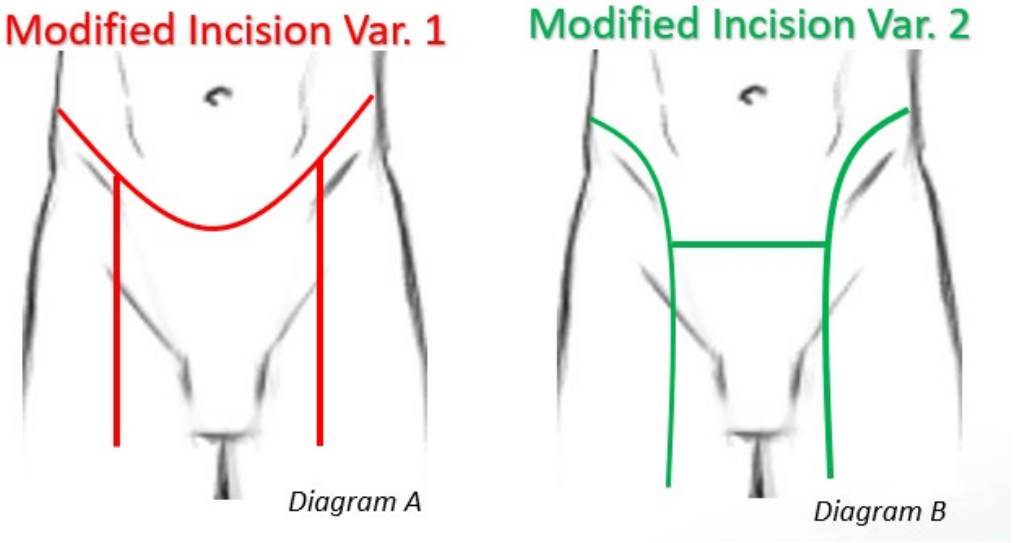
Hypothesis

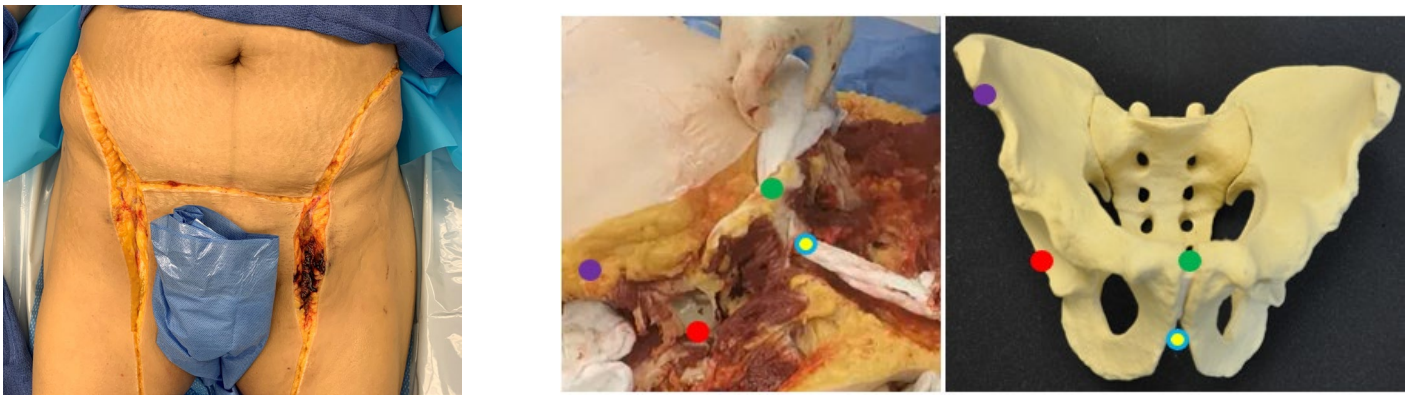
The LifeGift Training Committee supposed that a wider and lower abdominal concave-like incision going across the abdomen would improve our ability to fully visualize and identify all the key markers and landmarks of the hemi-pelvis, which in turn would allow for an easier recovery. Additionally, we wanted to determine if this modified recovery method would result in less contamination by completely isolating the areas of potential risk of contamination and translocation of microorganisms and increase our yield of complete hemi-pelvis grafts.

Method

We began orienting staff to the new method by way of in-person training, video instruction, firsthand training, and e-learning through LifeGift's online learning management system in August 2019. We began a trial of this approach through a PDSA format on September 19, 2019, with just the Southeast (Houston) LifeGift region, the busiest one in terms of tissue recoveries. We made the recovery change for only one processor for one of their specialized musculoskeletal recovery types. This alternate method for the hemi-pelvis recovery is initiated by making an incision superior to the iliac crest, beginning slightly more laterally, following the path of the iliac crest and coming across the lower abdomen just superior to the pubic symphysis and continuing to the other side mirroring the opposite side incision, which will make a sort of a wide "smiley" face. The leg incision is made by connecting your incision line to the "smiley" incision near the inguinal area of the donor (Diagram A). When the skin is fully reflected with this type of incision, it allows for maximum exposure of the hemi-pelvis including complete visualization of the pubic symphysis, making all critical landmarks more accessible and easier to see. For added protection, we instructed staff to insert a barrier such as a sterile lap sponge through the pubic arch to cover both the bladder and underlying genitalia to minimize accidental breaches. We tracked and analyzed data every 3 months during the PDSA for 9 months. We conducted periodic check-ins with staff to

address immediate questions or concerns. We repeatedly illustrated the recovery method in monthly departmental staff meetings in addition to presenting the data every few months to show trends and answer questions. We provided a follow-up survey to gauge staff's receptivity to the process, pros and cons, feasibility of recovery, and the impact on training. As we implemented this, staff made minor adjustments to the incision from the curved "smiley" incision to a straight incision across the lower abdomen, just superior to the pubic symphysis, however, staff use either of these, particularly dependent on abdominal skin recovery (Diagram B)



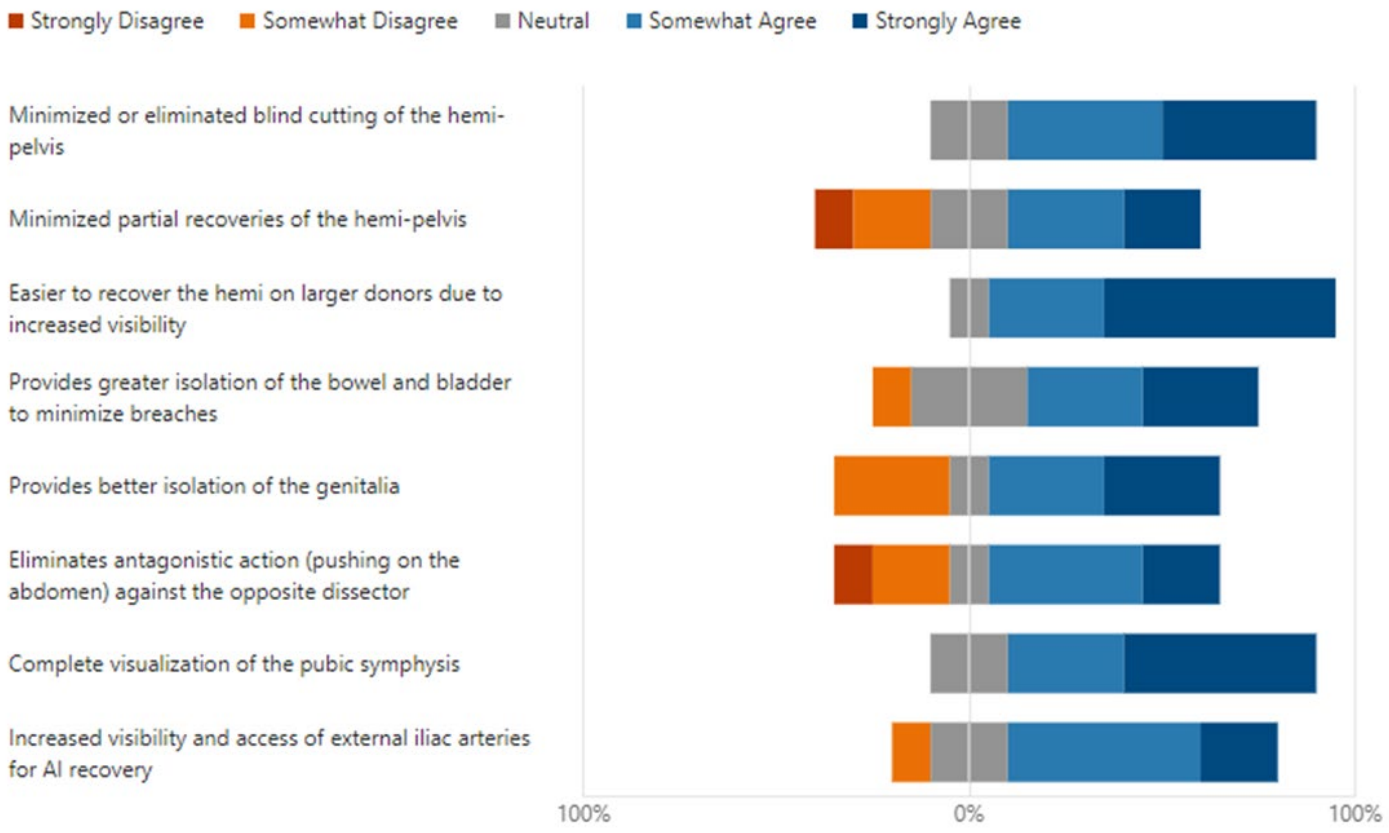


Modified Incision Var.2 and resulting exposure

Results

We focused on improving one processor's *specialized MS recovery culture rate (SMSRCR).* Before implementing the alternate recovery method, our SMSRCR average was at 22%. 9 months later, it was 14% and for 5 consecutive months, we remained below the national average and did not go above the culture rate goal that we tried to remain under. Additionally, our partial hemi-pelvis recoveries went from 39.3% to 10.4%, then to 7.5%, and then to 4.1% average. Every 3 months after the onset of the PDSA in September 2019, as we evaluated the data, we kept seeing downward trends in both contamination percentage and partial hemi-pelvis recoveries percentage. A year later our SMSRCR was at 6.67% and we won national recognition for our contamination improvement and contamination rate. We surveyed staff (n=37) to gauge staff receptivity and acclimation to the change after seeing the favorable contamination rates and performance metrics. The survey results suggested staff responded positively to the change in the recovery method. Over 80% of our staff have been in recovery for more than 1 year, and almost 70% have been in recovery for 6+ years. All recovery technicians that were either in the progress of MS recovery training or had achieved competency on MS

recovery had responded that they recovered the hemi-pelvis using the modified recovery method, and 100% of them found the modified recovery method helpful. Over 90% responded they were extremely confident in utilizing the modified recovery method on a scale from 1 – 5, 1 being not confident. When asked about challenges using this approach, the majority said there were no challenges, while one person said that reconstruction was a challenge due to the additional suturing required on larger donors. 70% of staff responded favorably and with overwhelming agreement with the observed benefits.



Conclusion

Not only did the modified recovery method for the hemi-pelvis yield favorable contamination results and less partial hemi-pelvises recovered, which resulted in a lowered incidence of donor tissue conversion at processing but demonstrated and yielded additional benefits not anticipated at the onset of the PDSA, according to staff feedback. Training staff on how to recover the hemi-pelvis has been a great benefit as it has reduced the difficulty in trying to help someone new understand anatomical landmarks since visibility is significantly increased. As we monitored the data over the course of the 9-month PDSA, we implemented the process and change across all three LifeGift regions as a standard way of recovering the hemi-pelvis for all our MS processors. Staff with fewer years of recovery experience had not been trained or oriented as much to the traditional shepherd's hook incision as they had been with the modified hemi-pelvis incision, so their answers were more neutral regarding the comparison of benefits for the different recovery methods.

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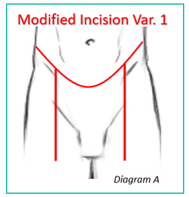

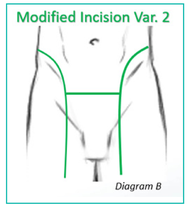

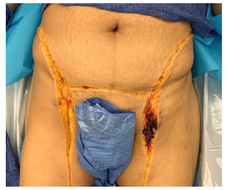

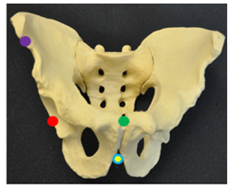

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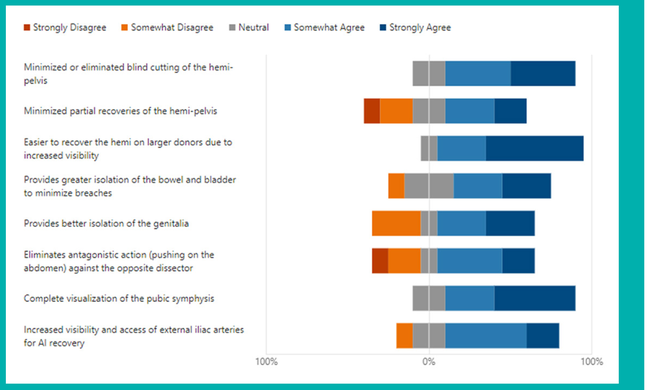

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