Overlapping Operations Did Not Affect Outcomes in Microvascular Reconstruction

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Abstract

OBJECTIVE: Determine if overlapping microvascular free tissue transfers are associated with increased rates of complications.
STUDY DESIGN: Retrospective chart review.
METHODS: Compared outcomes for non-overlapping (n=773) and overlapping (n=542) microvascular free tissue transfer operations. Reviewed patient demographics, indication for surgery, defect, type of microvascular free tissue transfer used, T classification, neck dissection, duration of the operation, length of hospitalization and complications (major, minor, and medical).
RESULTS: 1,315 microvascular free tissue transfers were performed between 2010-2015 at UAB and OHSU. Mean duration of the overlapping operations was 5.5% (24 minutes) longer than non-overlapping operations (p=0.003). Mean duration of hospitalization was the same between non-overlapping (9.5 days) and overlapping (9.1 days) cohorts (p=0.39). Complication rates were similar: overlapping (18%, n=241) and non-overlapping (26%, n=344)(p=0.65). Survival rate of free tissue transfers was the same for overlapping (96%) and non-overlapping (96%) operations (p=0.71).
CONCLUSION: Patients had similar complication rates and duration of hospitalization regardless of whether an overlapping or non-overlapping operation was performed.

Introduction

Growing concern regarding patient safety in the setting of an attending surgeon being responsible for multiple operating rooms. Overlapping operations are defined as operations which are being overseen by the same attending that either overlap for extended periods of time or are performed simultaneously. We hypothesize that complication rates, length of hospitalization and outcomes will be similar, regardless of whether an overlapping microvascular reconstruction was performed.

Methods & Materials

Non-overlapping: on a given day a single or consecutive microvascular free tissue transfer was performed (n=773, 59%)
Overlapping: on a given day both operations had a first start, or the second operation began in another operating room at least one hour prior to the first operation being concluded. (n=542, 41%).

Complications which occurred within 30 days of the initial microvascular free tissue transfer operation were included and were further subdivided into major or minor surgical & medical complications.

No potential conflicts of interest were disclosed.

Results

	Overlapping Operations		
	None	Yes	
Characteristics	n (%)	n (%)	p-value
Age (years)			
Mean (±Range)	59 (6-89)	59 (7-96)	0.57
Gender			
Male	547 (42)	388 (29)	0.75
Female	226 (17)	154 (12)	
Donor Tissue			
RFFF	377 (29)	262 (20)	0.63
OCRFFF	99 (8)	83 (6)	
ALT	89 (7)	64 (5)	
Fibula	85 (6)	50 (4)	
Rectus	50 (4)	42 (3)	
Latissimus	49 (4)	29 (2)	
Ulna	11 (<1)	3 (<1)	
Scapula	2 (<1)	2 (<1)	
Hospitalization (days ±SD)	9.5 (±0.6)	9.1 (±0.7)	0.37

Operative Duration

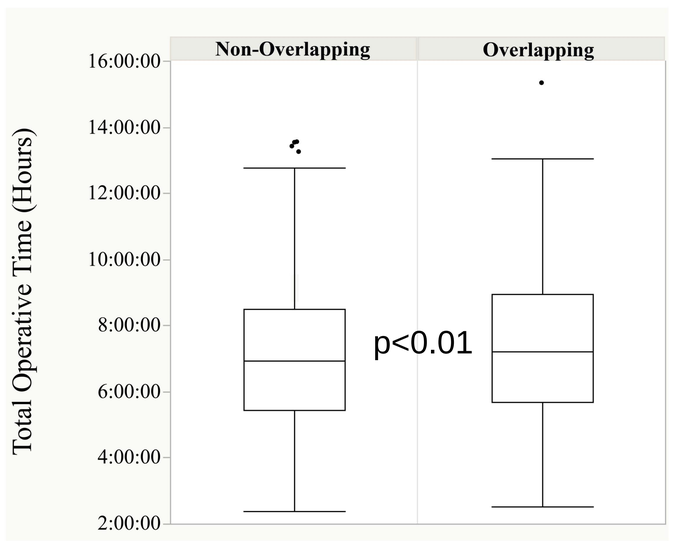

Figure 1: Operative duration was 21 minutes longer for overlapping operations compared to those operations which were not overlapping.

Free Flap Distributions

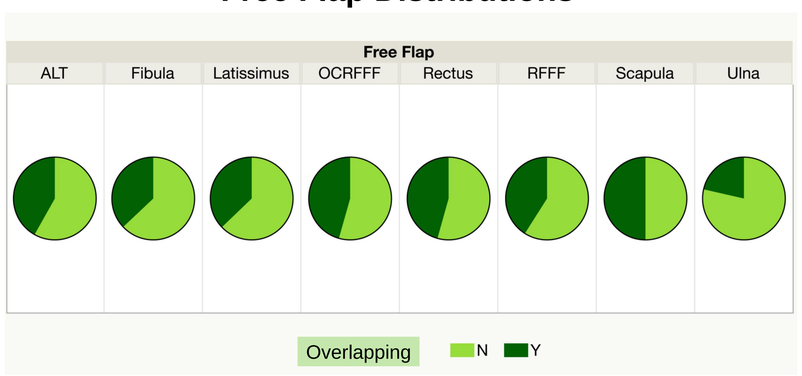

Figure 2: The donor tissue selected for the microvascular free tissue reconstruction did not vary between the overlapping operations and none overlapping operation cohorts (p>0.05).

Results

A complication occurred in 45% of cases (n=585).
Medical complications were the least common (7%, n=88), followed by minor surgical complication (12%, n=164) and major surgical complications (25%, n=333).
The incidence of minor surgical (p=0.31), major surgical (p=0.72), and medical (p=0.47) complications were the same for overlapping and non-overlapping operations (Figure 3).
Free tissue transfer failure rate of 4% for both overlapping (n=23) and non-overlapping (n=31) operations (p=0.83)

Complications

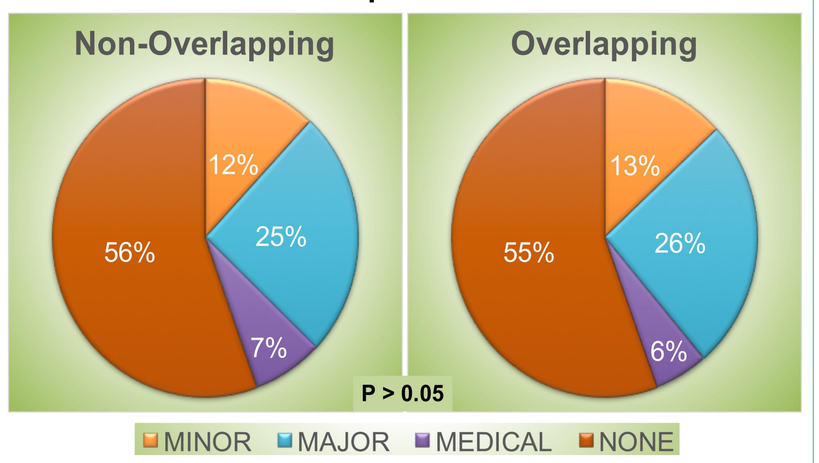

Figure 3: Complication rates were similar when stratified by whether an overlapping operation was performed or not.

Discussion

Limited data published on outcomes following overlapping operations, therefore there is a need for critical assessment of surgical outcomes following overlapping operations to determine the safety and quality of these practices.
Advantages include reduced wait times for highly specialized operations and critically important development of future surgeons through the incremental acquisition of surgical competence during training.

Conclusion

Studies such as this one, with a focus on the critical assessment of surgical outcomes, are needed to determine if overlapping operations are a means for delivering safe, high quality, and cost-effective care. Consistent with previous publications, this study supports that overlapping operations can be performed efficiently and with equivalent quality as operations which did not overlap.