

# Determining the Etiology of Quilty lesions: A Repeat Heart Transplantation Study

Carla Ellis MD<sup>1</sup>, Debra J. Carter CRNP<sup>2</sup>, William M Baldwin III, MD, PhD<sup>3</sup>, Marc K. Halushka MD, PhD<sup>1</sup>

<sup>1</sup>Department of Pathology, Division of Cardiovascular Pathology <sup>2</sup>Department of Medicine, Division of Cardiology, Johns Hopkins Medical Institutions, Baltimore, MD; <sup>3</sup>Cleveland Clinic Foundation, Cleveland, OH

**Purpose:** Quilty lesions are endocardial lymphoid proliferations that mimic acute rejection and are found only in transplanted hearts. At present, these lesions are not believed to herald acute rejection, but their presence has been associated with aspects of chronic rejection, particularly transplant vasculopathy. The etiology of Quilty lesions was once thought to be the result of cyclosporine use, but that explanation has not borne out. We investigated the etiology of Quilty lesions using a population of double heart transplant recipients.

**Materials and Methods:** Twenty-five subjects who have had repeat heart transplantation and who had at least 12 months of follow up for each heart were included. The surgical pathology records were reviewed for the presence of Quilty lesions in the report, and a subset of older biopsies and explanted hearts were reexamined to determine the presence of unreported Quilty lesions. All clinical parameters including HLA status, patient age, ethnicity, medication use, and rejection history were gathered for this cohort.

**Results:** Over 1,300 biopsies were evaluated with the average number of biopsies performed on each subject's first (28) and second (25) heart being similar. At least one Quilty lesion was found in 68% of first transplanted hearts and 64% of second transplanted hearts. We ascertained the role of the recipient in Quilty formation by comparing the presence of Quilty lesions in first and second hearts. This relationship approached significance ( $p=0.06$ , Fisher Exact Test) for the presence of a single Quilty, but was not significant if the criteria were two or more biopsies containing Quilty lesions ( $p=0.73$ , Fisher Exact Test). We then ascertained the role of HLA status in Quilty formation. We found donor HLA DR13 to be associated with the presence of a single Quilty lesion, or the more stringent two or more biopsies with Quilty lesions ( $p\leq 0.05$ , Fisher Exact Test). Recipient HLA A32 was increased in subjects without Quilty lesions ( $p=0.04$ , Fisher Exact Test). We found no relationship between Quilty lesions and sex mismatch, ethnicity mismatch, blood type, medication (cyclosporine use), donor age, or the overall number of HLA mismatches.

**Conclusion:** We have utilized this unique resource to investigate the cause of Quilty lesions. We found no relationship between cyclosporine use and Quilty formation. Our data suggests the possibility of donor-recipient interactions as a cause of Quilty formation, specifically the presence of donor HLA DR13 and recipient HLA A32 as modulators of this effect.