



## Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

## ASSESSMENT OF MISSING LINKS IN ATHEROGENESIS: PILOT STUDY OF GREAT APES AND HUMANS

Poster Contributions

Poster Area, South Hall A1

Sunday, April 03, 2016, 3:45 p.m.-4:30 p.m.

Session Title: Cardiac CT Angiography: Prognosis, Plaque and Perfusion

Abstract Category: 28. Non Invasive Imaging: CT/Multimodality, Angiography, and Non-CT Angiography

Presentation Number: 1230-263

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**Background:** At least 30% of MI's are not explained by traditional cardiac risk factors. The discovery of genetic or yet unknown other risk factors could offer improved treatment strategies.

**Methods:** 32 great apes stored in alcohol tanks at the Smithsonian Institution were studied with whole body CT scanning, arterial biopsies, stable isotope analysis, and DNA extraction.

**Results:** Of 11 animals biopsied, 4 (1 wild gorilla, 2 zoo gorillas, 1 zoo other species) had atherosclerosis on microscopic analysis (pathologic intimal thickening, fibrous atheromas). Arterial calcifications or arterial thickening was seen on CT scan near each of the positive biopsy sites. DNA and stable isotope work is ongoing.

**Conclusions:** Great apes, both in captivity and in the wild have biopsy-confirmed atherosclerosis, identical to that seen in humans. Calcifications and/or arterial thickening is seen on CT scan in the involved arterial segments. Cross species work on atherosclerosis might offer insights into the fundamental mechanisms of this important human disease.

Figure: (A) CT scan of adult gorilla showing atherosclerotic calcification in the distal abdominal. (B) Photomicrograph of a biopsy of this region shows atherosclerosis with fibrous cap atheroma and necrotic core.

