

**CT**  
CORONARY

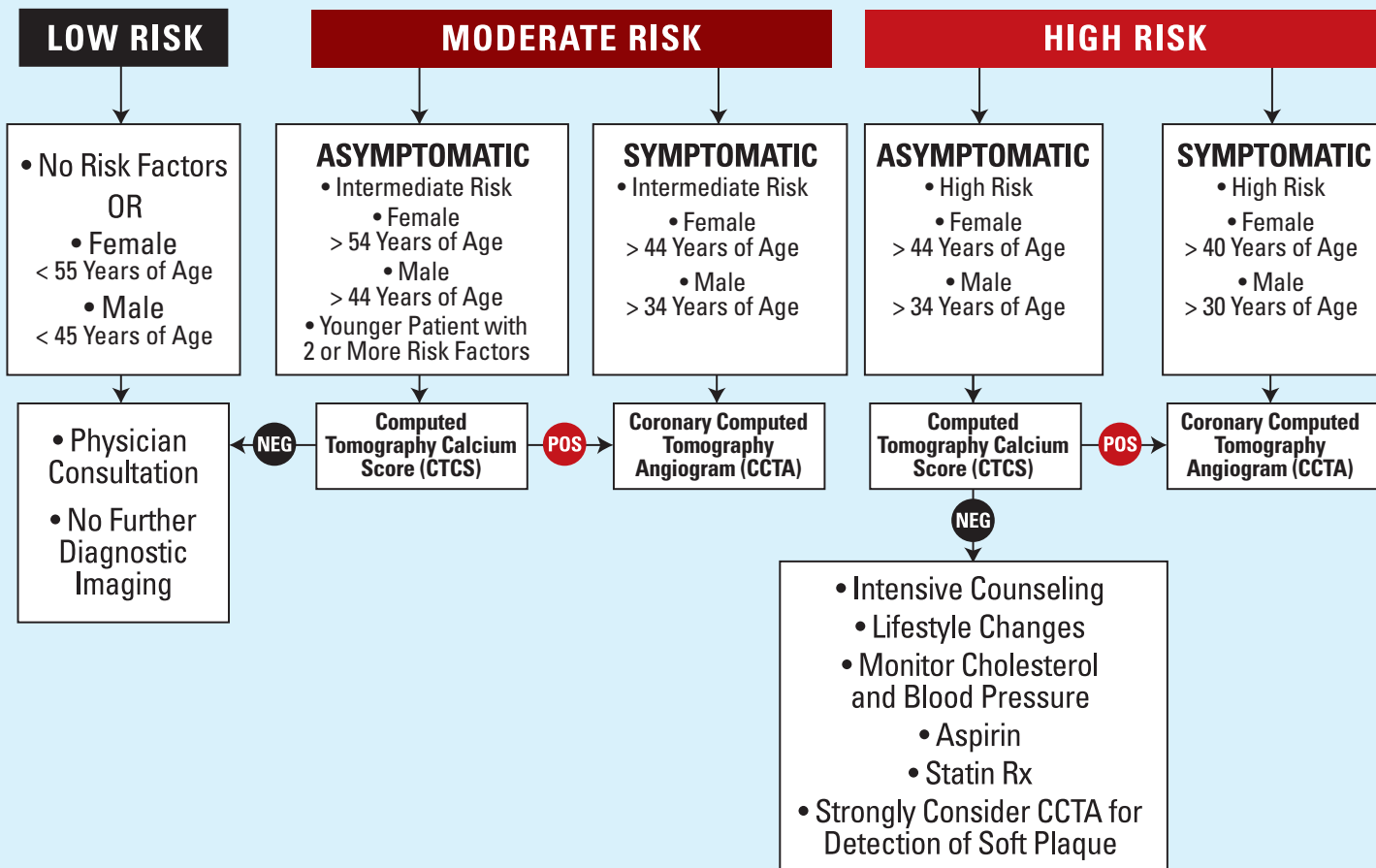
## Coronary Artery Calcium Scores Predict Future Cardiac Risk – Even in Asymptomatic, “Low-Risk” Patients

Researchers from Germany evaluated the predictive value of coronary calcifications detected by electron-beam CT in asymptomatic patients. Of the 1,726 asymptomatic adults, CT showed no coronary artery calcifications in 379, and coronary artery calcifications above an Agatston score of 75th percentile in 724. Within the average observation period of 40.3 months, 114 patients had a myocardial infarction (MI) and cardiac death occurred in 66 patients; none of these occurred in those patients with no coronary calcifications on CT. An Agatston score above the 75th percentile was associated with a significantly higher risk of these events.<sup>1</sup>

In a related study, researchers evaluated coronary artery calcium scores in over 3,000 women classified as “low-risk” based on their Framingham risk scores. Coronary artery calcifications, or a coronary artery calcium (CAC) score greater than 0, were found in 32% of these women. Based on average follow-up of about 44 months, those with CAC scores greater than 0 were found to be at higher risk for cardiovascular events. In addition, a CAC score of greater than 300 (indicative of advanced coronary artery disease) was highly predictive of future coronary heart disease and cardiovascular events.<sup>2</sup>

**Conclusion: CT coronary artery calcium scores can predict risk of future cardiovascular events in asymptomatic or “low-risk” patients. A lack of coronary artery calcifications also has significant negative predictive value in the same population.**

### Algorithm for Diagnostic Evaluation of Coronary Artery Disease (CAD)<sup>3</sup>

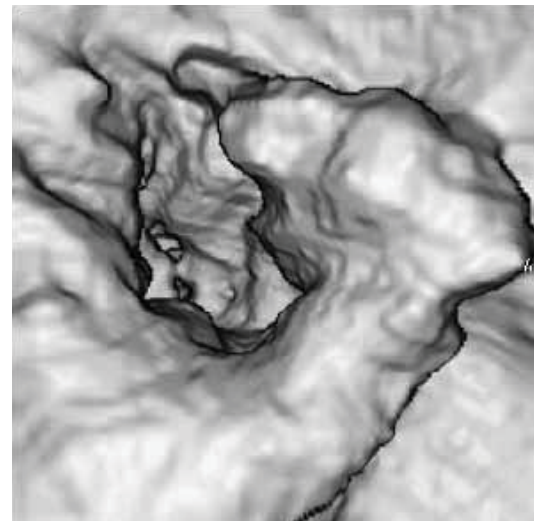


## Diffusion-Weighted MR Imaging Can Help Distinguish Benign from Malignant Pelvic Tumors

In a study presented at the RSNA by a radiologist from Massachusetts General Hospital, 65 women with 80 pelvic lesions had diffusion-weighted MR imaging performed on a 1.5-Tesla magnet. The lesions were characterized as benign or malignant based on histopathology, resolution on follow-up imaging, or stability for greater than six months. Of the 80 lesions, 14 were found to be malignant, including endometrial carcinoma, cervical carcinoma, and metastases. They found significant correlation between apparent diffusion coefficient values and malignancy, with the average ADC value of 0.6 for malignant and 1.0 for benign lesions. Using a cutoff ADC value of 1.0 (below which lesions are considered malignant), sensitivity was 93% and specificity was 44%. In addition, subjective analysis of DW images was performed by comparing the intensity of the tumor to normal myometrium, and allowed accurate differentiation of malignant from benign tumors in 91% of cases. **Conclusion: Diffusion-weighted MR imaging, using qualitative and quantitative methods, can allow relatively accurate differentiation between benign and malignant gynecologic tumors.**<sup>4</sup>

## CT Colonography Is Useful Alternative to Optical Colonoscopy

At Thomas Jefferson University Hospital, CT colonography was performed on 42 patients over age 60 using pre-scan colonic cleansing, carbon-dioxide insufflation, and a 16-detector CT scanner. Of the 42 patients in the study, 12 had contraindications to optical colonoscopy and 30 had previous incomplete colonoscopies. Of the 42 patients, none had complications. Thirty-nine of the 42 had optimal distention of the entire colon. Thirty-nine had abnormal findings, including diverticulosis, polyps, or masses. Findings outside the colon requiring further evaluation or treatment were found in 26 patients (62%), including several extracolonic masses. **Conclusion: CT colonography can successfully evaluate the entire colon in patients with colonic redundancy, diverticulosis, or other issues that may complicate or contraindicate optical colonoscopy. Moreover, it provides the advantage of detecting extracolonic pathology in many patients.**<sup>5</sup>



*Virtual CT colonoscopy shows visible tumour of the sigmoid.*

## NEXT ISSUE: MORE ADVANCED IMAGING NEWS

### SOURCES

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- 2 Lakoski SG, Greenland P, Wong ND, et al. "Coronary Artery Calcium Scores and Risk for Cardiovascular Events in Women Classified as 'Low Risk' Based on Framingham Risk Score: The Multi-Ethnic Study of Atherosclerosis (MESA)." *Arch. Intern. Med.* 2007;167:2437-2442.
- 3 Kirks DR. *A Physician's Guide to Cardiac CT*. ProScan Imaging Education Foundation 2007.
- 4 [http://rsna2007.rsna.org/rsna2007/V2007/conference/event\\_display.cfm?em\\_id=5015750](http://rsna2007.rsna.org/rsna2007/V2007/conference/event_display.cfm?em_id=5015750) (online only).
- 5 Yucel C, Lev-Toaff AS, Moussa N, et al. "CT Colonography for Incomplete or Contraindicated Optical Colonoscopy in Older Patients." *Am. J. Roentgenol.* 2008 190: 145-150.



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