# Incidental Findings on CT Scans in Transcatheter Aortic Valve Replacement Patients

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# Incidental Findings on CT Scans in Transcatheter Aortic Valve Replacement Patients

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## Research Question

What is the prevalence of non-cardiovascular incidental findings (IFs) on computed tomography (CT) scans in patients evaluated for transcatheter aortic valve replacement (TAVR)? What is the impact of IFs on clinical outcomes?

## Background

CT scans are paramount for pre-procedural planning in patients undergoing TAVR. Besides providing essential cardiac information, the same CT data-set may incidentally reveal other findings that could potentially alter patient management.[1] Previous studies have reported up to 70% of the TAVR patients with non-cardiovascular incidental findings.[2]

This study aims to:

- Estimate the prevalence of non-cardiovascular IFs
- Categorize each IF based on diagnosis and location
- Assess the overall effect of IFs on 1 year post-TAVR survival

## METHODS

1. Retrospective single-center study involving 390 patients undergoing a TAVR procedure between May 2012 and June 2016
2. A database was created using Microsoft Access to compile data from electronic medical records
3. Analysis of baseline characteristics and survival rates using descriptive and inferential statistics

## OUTCOMES

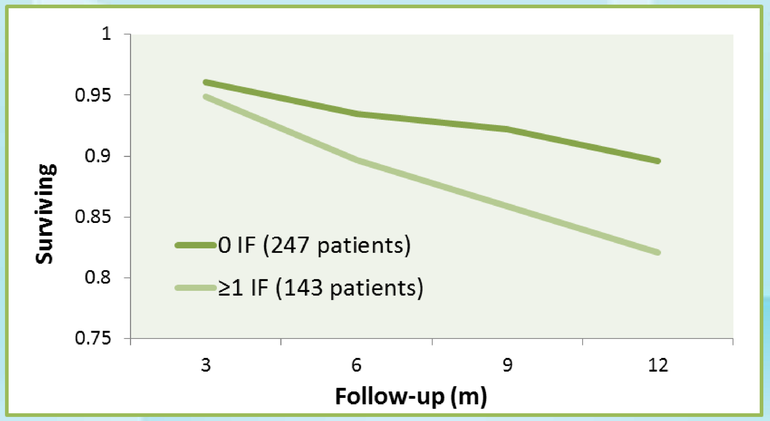
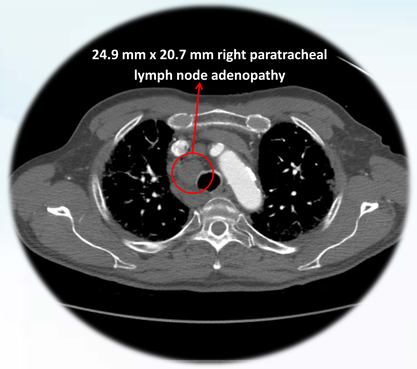
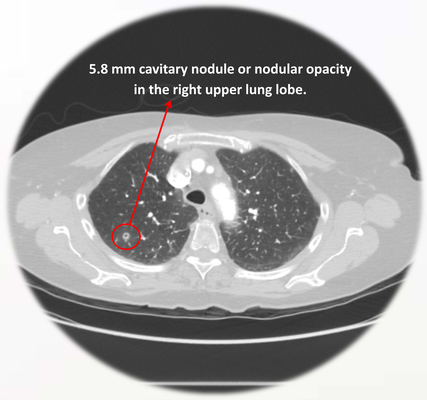



**Figure 1: Survival rate at 1 year post-TAVR and the presence of IFs**

**Table 1: Classification of IFs**

| CT Incidental Findings | Patients (n) |
|---|---|
| All Patients | 390 |
| Patients with IF | 143 |
| **THORAX (138 total)** | |
| Pulmonary mass | 36 |
| Pulmonary nodule | 52 |
| Thyroid nodule | 17 |
| Adenopathy | 33 |
| **ABDOMEN/PELVIS (45 total)** | |
| Kidney mass | 2 |
| Liver mass | 2 |
| Spleen mass | 8 |
| Mesentery mass | 2 |
| Adrenal mass | 4 |
| Pancreas mass | 1 |
| Retroperitoneal mass | 1 |
| Duodenum tumor | 1 |
| Colon tumor | 1 |
| Adrenal gland nodule | 10 |
| Liver nodule | 4 |
| Pelvis nodule | 1 |
| Prostate nodule | 2 |
| Soft tissue | 2 |
| Adenopathy | 4 |




## DISCUSSION

- The mean number of clinically significant incidental findings per patient was approximately 0.47, while other institutions demonstrated a range of means from 0.09 to 0.24 findings per patient.[1-4]
- Pulmonary nodules and masses were the most prevalent IFs (n=88, 48.1%)
- There was no statistically significant difference in survival rates between patients with and without IFs at one year post-TAVR; and no statistical correlation between age and the prevalence of IFs

## CONCLUSIONS

The study exhibits a compelling number of incidental findings on CT scans during the workup for TAVR, with the most common being related to pulmonary nodules. There is a decrease in the survival rates of patients which correlates to the prevalence of IFs. In addition, the results suggest that the heart team should take these findings into consideration during preoperative work-ups and perform the appropriate follow-up examinations as needed.

**Resources:**

1. Gulfer, H., Schulze, C. G. & Wagner, S. (2013). Incidental findings in computed tomographic angiography for planning percutaneous aortic valve replacement: advanced age, increased cancer prevalence?. *Acta Radiologica*,
2. Staab, w., Bergau, L., Lotz, J., & Sohns, C. (2014). Prevalence of noncardiac findings in computed tomography angiography before transcatheter aortic valve replacement. *Journal of cardiovascular computed tomography*, 8(3)

*Additional sources on the back