**A 10 year retrospective analysis of aortitis cases from screening of 15963 radiology cases in a London teaching hospital, with recommendations for screening and management**

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**Background:** Aortitis is a heterogeneous rare condition causing aortic inflammation, often due to infectious or autoimmune aetiology. Its presentation, diagnostics and optimal management remain poorly understood and require multidisciplinary input. With the advent of improved imaging techniques, an increasing number of radiology reports are identifying features of vasculitis necessitating clinical investigation.

**Objectives:** We investigated how cases identified on imaging with features of aortitis reflected clinical diagnosis and treatment. We further examined whether radiological detection of aortitis may enable more rapid management decisions to improve outcomes.

**Methods:** A search was conducted of all radiology reports from St George’s Hospital between 2008 and 2018 for key words indicating “aortitis”, including ‘hyperintense vessel uptake’ and ‘periaortic inflammation.’ From 15,963 initial results, 80 reports were identified with radiological suspicion of aortitis.

**Results:** Of 80 cases, 36/80 were diagnosed with autoimmune or idiopathic inflammatory (AI) pathology: 9 Retroperitoneal Fibrosis, 8 Idiopathic, 7 Takayasu’s, 4 Giant Cell Arteritis, 2 inflammatory aneurysms, 2 Behcet’s, 2 IgG4 disease, 1 Lupus, 1 Granulomatosis with Polyangiitis. Diagnosis of AI aortitis was based on symptomatology, imaging, serology, vessel biopsy, and treatment response. 14/80 had infective aortitis: 11 had positive microbiology and 3 demonstrated empirical antibiotic response. Table 1 shows demographics. 12/80 had atheromatous disease. 18/80 were not further investigated due to comorbidity, lack of correlation with symptoms, or absence of follow-up.

Initial imaging modalities with the highest yield were computed tomography (CTs) with aorta protocols and CTs of thorax/abdomen/pelvis. The most useful radiology report terms included: aortitis, periaortic inflammation, Takayasu’s, and hyperintense vessel uptake.

**Table 1.** Demographics of patients with Infective Aortitis and Inflammatory Aortitis at diagnosis

|  |  |  |
| --- | --- | --- |
|  | Inflammatory | Infective |
| Total | N = 36 | N = 14 |
| Mean age at dx (years)(standard deviation, SD) | 60(SD 16) | 64(SD 12) |
| Age Range (years) | 21-83 | 29-76 |
| Gender F | 19 | 1 |
| Gender M | 17 | 13 |
| Current/Ex-smoker | 9 | 4 |
| Mean no. Comorbidities at time of diagnostic scan (SD) | 3(SD 2.2) | 4(SD 2.6) |
| Comorbidities recorded at time of diagnosis (% of total patients): |
| Hypertension | 33.3% | 50.0% |
| Dyslipidaemia | 11.1% | 28.6% |
| Ischaemic Heart disease | 25.0% | 21.4% |
| Renal disease | 13.9% | 21.4% |
| Cerebral vascular disease | 8.3% | 28.6% |
| Peripheral vascular disease | 5.6% | 14.3% |
| Diabetes | 13.9% | 14.3% |
| Cardiomyopathy | 13.9% | 14.3% |
| Atrial fibrillation | 11.1% | 14.3% |

***Legend:*** *Total cases with radiological suspicion of aortitis N = 80****.*** *Excluded from table N=30: atheromatous diagnosis=12; not followed up=18*

**Conclusion:** Our study is the first retrospective case analysis, to our knowledge, of more than 15,000 radiology reports used as a starting point to evaluate for aortitis, identifying a large dataset with a broad case-mix. It contrasts with current literature identifying cases histologically post-operatively. We found that radiology can be a useful early alert for possible diagnoses which require further assessment. Consequently, we developed an alerting system within our radiology department based on the search terms and imaging modalities identified. This links to a multidisciplinary meeting including vascular and rheumatology, so highlighted cases are discussed early.