Conclusion GP auscultation has only moderate accuracy for diagnosing valvular heart disease in an unselected population, and the presence of an isolated murmur would not be a reliable indicator of valve disease. This study did not include patients with cardiovascular symptoms however, in whom the presence of a murmur may be more significant, and for whom echocardiography might be more appropriate.

Abstract 136 Table 2 The accuracy of cardiac auscultation in diagnosing significant VHD

The accuracy of cardiac auscultation in diagnosing significant VHD

Echo Result		Murmur		Total
		Absent	Present	
Negative		148	66	214
	Positive	21	16	37
Total		169	82	251

Sensitivity = 0.43
Specificity = 0.69

Diagonal segments are produced by ties.

Abstract 136 Figure 1 ROC curve for significant VHD Area under the curve = 0.56 (95% CI 0.46 – 0.66)

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ASSESSMENT OF PRE-OPERATIVE TRANSOESOPHAGEAL ECHOCARDIOGRAPHY GUIDELINE PREDICTORS OF MITRAL VALVE REPAIR SUCCESS WITH CURRENT SURGICAL PRACTICE

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Introduction Mitral regurgitation (MR) is the second most common valvular heart disorder and severe MR brings with it a poorer prognosis. Successful mitral valve (MV) repair for prolapse has similar patient survival compared with expected

outcomes. Precise definition of MV morphology is required to determine the complexity and feasibility of MV repair. Several echocardiographic parameters in international guidelines try and identify patients at risk of treatment failure. These are largely based on one study in 2002 where quadrangular resection and sliding plasty was the surgical technique of choice for the majority of MV prolapse. More modern surgical practice largely spares resection of valve tissue and employs neo-chordae/transfer techniques. This brings into question the applicability of previous imaging predictors for procedural success.

Hypothesis Are echocardiographic parameters in current recommendations accurate in predicting successful mitral valve repair?

Methods A retrospective study was carried out on all MV repairs undertaken at Nottingham University Hospitals NHS Trust between August 2015 and August 2016. Significant residual MR was defined as moderate or above. Echocardiographic predictors of suitability were taken from the European Association of Cardiovascular Imaging 2013 guidelines. Inclusion criteria: Pre-operative transoesophageal echocardiogram (TOE); post-operative baseline transthoracic echocardiogram (TTE) at 3–6 months. Exclusion criteria: lack of pre-op TOE or post-op TTE; previous cardiac surgery.

Results 52 patients underwent MV repair. Of these, 28 patients had complete imaging as set out by the inclusion criteria. Data presented as mean±SD unless otherwise stated. 4/28 (14%) patients had significant residual MR. Table 1 shows demographics, pre-operative chamber characteristics, MV characteristics, operative technique and post-op MR characteristics between the two groups. There were no significant differences in demographics, cardiac chambers, MV or operative characteristics between patients with no significant residual MR and significant residual MR groups. No patients had quadrangular resection. The clinical characteristics of the 4 patients with significant residual MR are presented in table 2.

Discussion In this small, single-centre, retrospective study, we found that none of the current echocardiographic predictors of suitability for MV repair were associated with presence of residual significant MR. Further prospective work is required to re-evaluate clinical and imaging data in predicting MV repair success with current surgical practice and improved imaging techniques.

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CAN PATIENT SAFETY AND OUTCOMES BE PRESERVED DURING LEARNING CURVE FOR AN INNOVATIVE SURGICAL PROCEDURE? THE EARLY RESULTS OF WOLVERHAMPTON AORTIC VALVE REPAIR PROGRAMME

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Aim to evaluate early clinical and echocardiography outcomes of our recently initiated aortic valve repair (AV repair) programme.

Methods 26 patients were accepted for AV repair/replacement, starting in April 2014. The preoperative imaging was reviewed by our Cardiac MDT and by our proctor, Dr Emmanuel Lanasac. The indications for surgery are listed in table 1.

Abstract 137 Table 1 Clinical and echocardiographic characteristics

	All patients N = 28	No significant residual MR N=24	Significant residual MR N=4	P Value
Demographics				
Age, years	67 ± 11	66 ± 11	75 ± 7	0.160
Male gender, n (%)	18 (64)	16 (67)	2 (50)	0.520
Body mass index, kg/m ²	27.0 ± 5.1	27.1 ± 5.6	25.9 ± 0.6	0.284
Hypertension, n (%)	5 (18)	5 (21)	0 (0)	0.314
Current smoker, n (%)	0 (0)	0 (0)	0 (0)	1.000
- Ever smoked, n (%)	3 (11)	2 (8)	1 (25)	0.312
Ischaemic Heart Disease, n (%)	3 (11)	2 (8)	1 (25)	0.312
Mechanism of regurgitation				
- Valve prolapse	13 (46)	10 (42)	3 (75)	0.216
- Restricted leaflets	1 (4)	1 (4)	0 (0)	0.678
- Annular dilatation	4 (14)	3 (13)	1 (25)	0.508
- Flail leaflet	2 (7)	2 (8)	0 (0)	0.549
- Endocarditic damage	3 (11)	3 (13)	0 (0)	0.378
- Bileaflet prolapse/Barlow-type	5 (18)	5 (21)	0 (0)	0.378
Pre-operative cardiac chamber characteristics				
Left ventricular systolic impairment, n (%)	7 (28)	6 (25)	1 (25)	1.000
Left ventricular end-diastolic diameter, mm	53 ± 8	53 ± 8	51 ± 5	0.517
Right ventricular systolic impairment, n (%)	4 (14)	4 (17)	0 (0)	0.378
Left atrial diameter, mm	49 ± 10	49 ± 9	49 ± 14	0.890
Current predictors of successful valve repair				
Mitral valve annulus, mm	43 ± 7	43 ± 8	46 ± 2	0.414
Number of scallops involved, n (%)	2 ± 1	2 ± 1	2 ± 2	0.753
Anterior leaflet involvement, n (%)	13 (46)	11 (46)	2 (50)	0.877
Large central or complex jets, n (%)	11 (39)	10 (42)	1 (25)	0.527
Extensive valve calcification, n (%)	1 (4)	1 (4)	0 (0)	0.678
Operative characteristics				
Type of repair				
- Annuloplasty ring alone, n (%)	9 (32)	7 (29)	2 (50)	0.409
- Annuloplasty ring and artificial chordae, n (%)	12 (43)	10 (42)	2 (50)	0.755
- Annuloplasty ring and leaflet resection, n (%)	3 (11)	3 (13)	0 (0)	0.454
- Annuloplasty ring, leaflet resection and artificial chordae, n (%)	4 (14)	4 (17)	0 (0)	0.378
Baseline post-operative echocardiography characteristics				
Time to baseline echocardiography, weeks	14 ± 5	14 ± 6	13 ± 1	0.603
Residual mitral regurgitation				
- None, n (%)	7 (25)	7 (29)	0 (0)	0.212
- Trivial, n (%)	2 (7)	2 (8)	0 (0)	0.549
- Mild, n (%)	15 (54)	15 (63)	0 (0)	0.035
- Moderate, n (%)	3 (11)	0 (0)	3 (75)	<0.001
- Severe, n (%)	1 (4)	0 (0)	1 (25)	0.143

Abstract 137 Table 2 Clinical characteristics of the patients with significant residual mitral regurgitation

	Patient 1	Patient 2	Patient 3	Patient 4
Age & Sex	71F	69M	84F	76M
Residual MR severity	Moderate	Moderate	Moderate	Severe
MR aetiology	Prolapse	Prolapse	Annular dilatation	Barlow
LV systolic function	Good	Good	Good	Mildly impaired
Left atrial diameter (cm)	6.4	4.2	3.4	5.7
Complex jet	No	No	Yes	No
Annulus (cm)	4.9	4.5	4.4	4.7
Scallop involvement	P2	P3	Bileaflet	Bileaflet
Severe calcification	No	No	No	No
Infective endocarditis	No	No	No	No

Abstract 138 Table 1

Main indication for surgery	Number of patients
Symptomatic severe aortic regurgitation (AR)	13
Asymptomatic severe AR with moderate LV function or LVIDd>7 cm	4
Thoracic aortic aneurysm	7
Severe left main stem disease with grade 3 AR and small aortic annulus	1
Severe subaortic stenosis (P max 100 mm Hg) with grade 2 AR	1

There were 17 men and 9 women, with median age 58.5 years (22–76 years). The proctor assisted in 9 cases; otherwise all procedures were performed by both first authors operating together. Follow up was 100% complete. **Results** In 5 cases, AV repair was not deemed feasible intraoperatively, and was not attempted. AV repair was attempted in 21 and successfully completed in 19 patients (*Repair Group*; Table 2), including 6 bicuspid and 13 tricuspid aortic valves. The remaining 7 patients underwent AVR ± root replacement (*Replacement Group*).

Abstract 138 Table 2

Operative procedure	Number of patients
Isolated AV repair (with annuloplasty in 7 cases)	9
Excision of papillary fibroelastoma, subaortic membrane excision, AV repair	1
AV repair with pericardial patch to left coronary cusp, CABG	1
AV repair, remodelling of the aortic root, (external annuloplasty in 7 cases)	8
AV repair, replacement of ascending aorta (MV and TV repair in 1 case)	2

There were no deaths and no strokes. 1 patient in *Repair Group* developed atrial flutter, treated successfully by catheter ablation. 1 patient with isolated bicuspid valve repair has recurrent asymptomatic grade 3 AR seven months

postoperatively. 1 patient in *Replacement Group* (background of SLE) was diagnosed with mechanical prosthesis dysfunction, and underwent bioprosthetic redo AVR. The valve leaflet was blocked by pannus. Another patient from *Replacement Group*, who had poor LV preoperatively, underwent CRT implantation. 1 patient from *Repair Group* (5%) and 3 from *Replacement Group* (43%) group are in group NYHA 2; the others are asymptomatic and well. 7 patients in *Repair Group* (37%) and 1 in *Replacement Group* (14%) are not on any antiplatelet or anticoagulant medications. The median follow up in *Repair Group* was 16 months. The median AR grade was reduced from 3 to 1 ($p<0.01$ in Wilcoxon matched-pair signed-rank test). The freedom from AR grade 2 or more was 79%, and freedom from AR grade 3 or more 95%. In patients in whom the proctor directly assisted, the freedom from AR grade 2 or more was 100%. The difference in AR reduction between proctored and independent procedures was not statistically significant ($p=0.084$ in independent-samples Mann-Whitney U test). **Conclusion** These results reflect our learning curve. We feel we have achieved acceptable early results independently after the initial, directly assisted, procedures. We still need further experience, and an on-going dialogue with the proctor about the decision-making in AV repair will assist our progress.

Basic Science

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AN INVESTIGATION INTO THE SUBCELLULAR DISTRIBUTION OF TWO-PORE CHANNELS IN CARDIAC VENTRICULAR MYOCYTES IN LIGHT OF THEIR DIFFERING CONTRIBUTIONS TO BETA-ADRENERGIC SIGNALLING

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Introduction Nicotinic acid adenine dinucleotide phosphate (NAADP) is a calcium-mobilising messenger that acts via two-pore calcium channels (TPCs). NAADP releases calcium from a lysosome-related acidic compartment distinct from the endo-

Abstract 139 Figure 2 Representative images (immunocytochemistry) showing the subcellular distributions of: (A) TRP-ML1; (B) LAMP2; (C) TPC1; (D) TPC2; (E) RyR2.