The field of conservative Mitral valve surgery has expanded vastly since its beginnings with the work of Carpentier over twenty years ago. The role of the anaesthetist as echocardiographer is vital to the successful practice of conservative valve surgery; and mitral repair has become one of the key indications for intraoperative echocardiography. The lecture will emphasise the role of TEE in assessing the mitral valve before cardiopulmonary bypass in order to guide the surgeon. This evaluation of the valve concentrates much more on the precise location and mechanism of the regurgitant lesion rather than on its severity, which is difficult to assess during surgery, and is of minimal relevance, assuming the preoperative cardiological evaluation of the patient has been thorough.

We will look carefully at the echo views needed to provide this information and discuss the various dimensions of the mitral valve and its related structures which aid our decision making. In particular we need to study the following:

1. Leaflet mobility, length and thickness
2. Location of abnormalities
3. Coaptation areas
4. Calcification and fusion
5. Annular dimensions
6. Subvalvar apparatus
7. LV shape and function

We need to decide on which mechanism of regurgitation is present:

1. Dilatation
2. Perforation
We will also consider the limitations and the difficulties of 2D and colour flow Doppler in providing the information we need. Examples from real cases will be used to make these points clear. TEE in mitral valve surgery should not be restricted to the affected valve. It is important that a comprehensive examination should study the whole heart, with particular attention being paid to the right ventricle, tricuspid valve and to assessing pulmonary hypertension.

The second part of the lecture will focus on post bypass assessment of the valve and how to grade residual regurgitation. The complications of mitral repair such as systolic anterior motion (SAM) and post repair stenosis will be discussed. The mechanisms and prediction of SAM from measurements of valve and ventricular geometry will also be explained.

The question of what is an acceptable repair and when the patient should be returned to bypass for a further repair is difficult. The decision making process is dependent on many factors, not least the interaction between the surgeon and the anaesthetist.

There are proposed standard of practice for mitral valve repair which include the provision of well trained and experienced intraoperative echocardiography:
