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Annuloplasty Ring Dehiscence in Ischemic Mitral Regurgitation

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A 75-year-old woman described having shortness of breath. Four months earlier she had undergone coronary artery bypass grafting and undersized annuloplasty for treatment of ischemic mitral regurgitation (IMR). Real-time three-dimensional echocardiography revealed annuloplasty ring (AR) dehiscence (Fig 1A) from the posterior annulus (PA) and recurrent IMR (Fig 1B). Often the degree of annular undersizing necessary to restore valve competence in IMR is substantial and predisposes to ring dehiscence. Customized software was used to generate a quantitative three-dimensional model of the patient's valve, including leaflets (anterior, AL; posterior, PL), annulus (An), annuloplasty ring (AR), and regurgitant orifice area (ROA) (Fig 1C, D). Such modeling techniques are rapidly evolving and in the future will allow annular and leaflet stress to be determined before and after operation. Inasmuch as most repair failures are stress related, these models should promote the development of patient-specific strategies that improve the results of mitral repair operation.

Fig 1.