After informed consent was taken from the patient, an intravitreal injection of recombinant tissue plasminogen activator (20µg in 0.01ml) was performed on the left eye followed 30 minutes later by an intravitreal injection of 100% sulphur hexafluoride gas (0.4ml) combined with anterior chamber paracentesis on the left eye. Strict face-down positioning was carried out for one day.

By the next day, the submacular haemorrhage in the left eye was significantly displaced from the macula and the left BCVA improved to 6/60. A fluorescein angiogram performed on the left eye excluded any evidence of a choroidal neovascular membrane. The antiplatelet therapy was discontinued for two weeks. The patient developed a breakthrough vitreous haemorrhage in the left eye on post operative day 6 but the left eye vision was maintained at 6/60. Three months later, the left BCVA improved to 6/24 and the left vitreous haemorrhage had completely cleared with no signs of recurrent of submacular haemorrhage (Fig. 2).

DISCUSSION
During a valsalva manoeuvre, an increase in intrathoracic pressure against a closed glottis can lead to a rise in intraocular venous pressure which can cause rupture of retinal or choroidal vessels. As this patient had a history of heavy coughing and sneezing prior to the submacular haemorrhage and being hypertensive and on antiplatelet therapy, he was at risk of developing this complication.

The natural history of submacular haemorrhage is poor mainly due to the underlying pathology as well as the toxicity of subretinal blood. There are various treatment options for this condition. Here we illustrate a successful treatment using recombinant tissue plasminogen activator (rtPA).
to be effective in displacing dense submacular haemorrhage and in facilitating visual improvement³.

Heriot first described the method of using intravitreal rtPA for thrombolysis and pneumatic displacement of blood combined with face-down positioning⁴. His initial experience suggested a high anatomic success rate with limited complications. Recombinant tissue plasminogen activator was initially used as a thrombolytic agent in acute myocardial infarction. It has been shown that rtPA is able to penetrate the retina via microlesions caused by subretinal haemorrhage⁵.

Pneumatic displacement combined with intravitreal injection of rtPA was performed on this patient because it is a minimally invasive procedure and can be performed in an outpatient setting. Because of concerns about toxicity, a low dose of rtPA (20µg) was used. We observed tremendous improvement in 24 hours and we would recommend urgent treatment for such cases in order to salvage vision as the outcome of this condition is generally very poor.

CONCLUSION
Extensive submacular haemorrhage secondary to valsalva retinopathy can be effectively and safely displaced with the use of low dose intravitreal rtPA combined with pneumatic displacement and face-down posturing. This should be done urgently in order to achieve optimal visual recovery.

REFERENCES