

INTRODUCTION/AIMS

Mydriacaine No 2 is used during some VR surgery and also commonly in uveitis to break posterior synechiae when topical dilation therapy has failed.

Systemic cardiac side effects are known to occur and published case reports remain the primary method of communication as Mydriacaine No 2 does not appear in the BNF.

By presenting this case we aim to provide Eye Professionals with further useful information to guide practice of when more cautious use of Mydriacaine No 2 or alternative options should be considered.

CASE REPORT

70 M - LE iritis with posterior synechiae (PS)

PMHx - recurrent LE iritis, ankylosing spondylitis, stable CLL, percutaneous coronary intervention 2009, angina

Examination - RE 6/7.5, LE 6/24, LE irregular pupil with slow reaction. LE <0.5mm hypopyon with PS.

Management - 3 rounds of 2.5% phenylepinephrine and 1% cyclopentolate. Followed by subconjunctival injection of 0.3ml Mydriacaine No 2.

Shortly after developed tachycardia, central chest pain radiating down the left arm and diaphoresis.

ECG showed no ischaemic changes - Figure 1. Troponin 27-80 ng/L (normal <14 ng/L).

Admitted to Cardiology. Cardiac catheterisation showed coronary artery dissection. 2x stents inserted. Discharged following day on dual antiplatelet therapy.

MYDRIACINE NO 2

Figure 2 shows the 0.5ml vial but 0.3ml contains:

- Atropine sulphate 1mg
- Adrenaline acid tartarate 120mcg
- Procaine hydrochloride 6mg

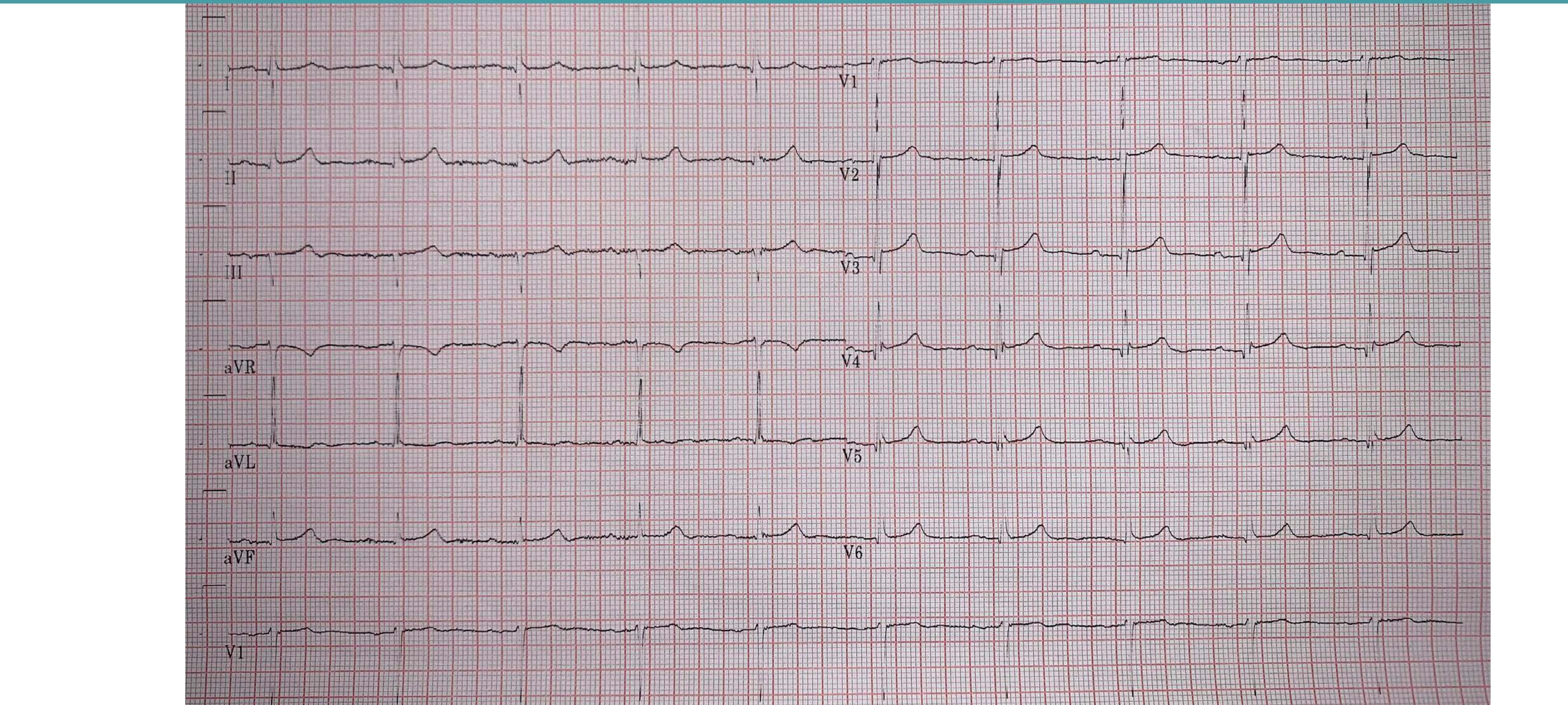


Figure 1. Electrocardiogram (ECG) showing no ischaemic changes

Mydriacaine No.2 Subconjunctival Injection 0.5ml

Dose: ADULTS not to exceed 0.3ml

Protect from light and store below 25°C

0.3ml contains 0.12ml adrenaline 1 in 1000 solution (equivalent to 0.12mg Adrenaline Ph Eur), 1.0mg Atropine Sulfate Ph Eur and 6.0mg Procaine Hydrochloride Ph Eur

Also contains boric acid, sodium metabisulfite and water for injections

Expiry 16.03.21 BN 769098 10 x 0.5ml ampoules

Keep out of the sight and reach of children

Tayside Pharmaceuticals DD19SY MS 14076 P087

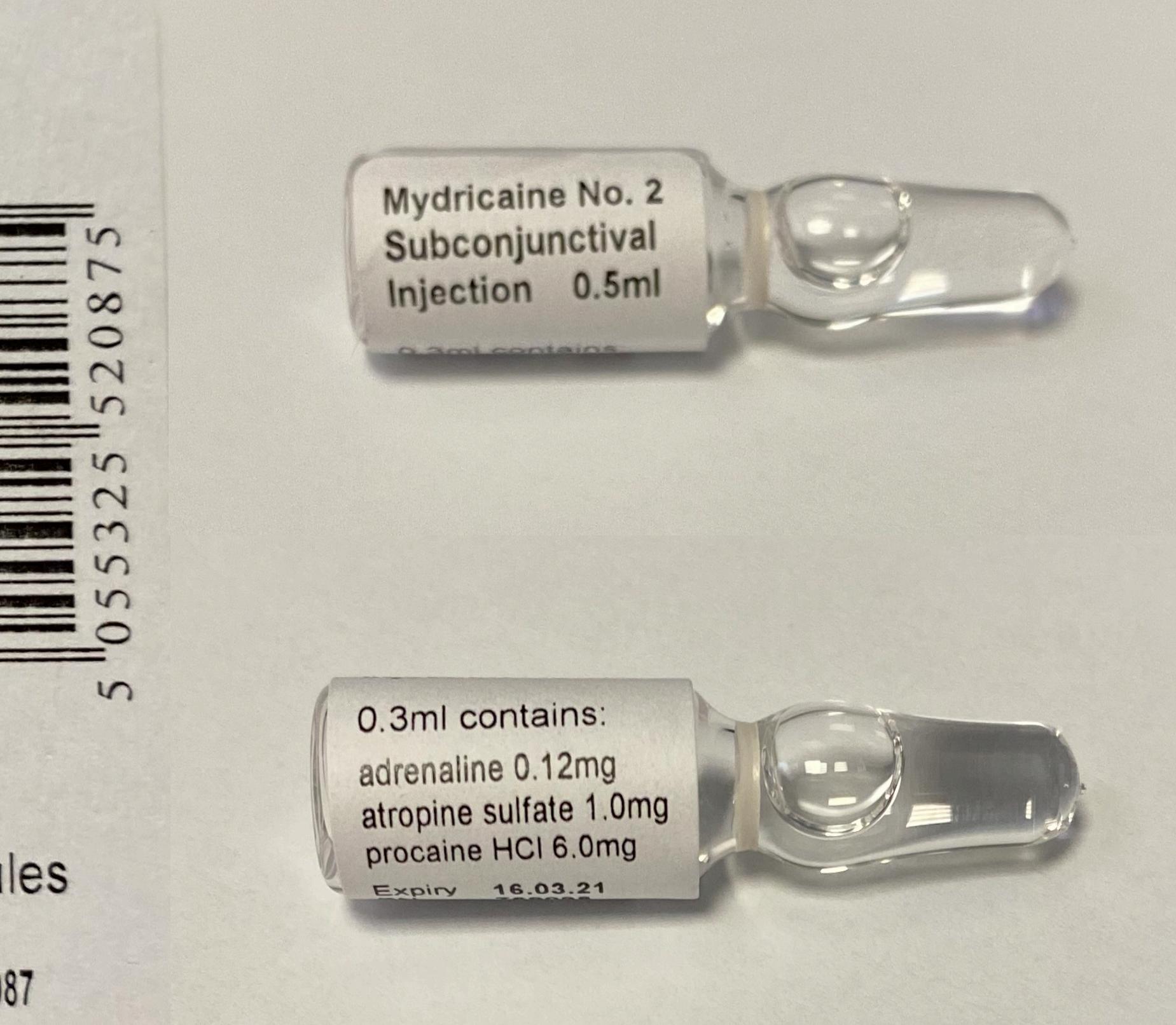


Figure 2. Mydriacaine No 2 packaging and glass vial

Year	Cardiac Effect	Age/Sex	Previous Cardiac Hx
1994	ST Elevation Myocardial Infarction (STEMI) ¹	78 F	3x myocardial infarction
2001	Supraventricular ectopics and SVT ²	76 M	Nill
2005	Myocardial ischaemia ³	72 F	Nill
2006	Atrial fibrillation ⁴	77 F	Hypertension, diabetes
2016	Takotsubo cardiomyopathy ⁵	45 F	Nill

Figure 3. Case reports of cardiac side effects following Mydriacaine No 2

LITERATURE/DISCUSSION

Cardiac effects of Mydriacaine No 2 are well published. A vascular conjunctiva enhancing systemic absorption in combination with atropine and adrenaline can lead to tachycardia and vessel vasoconstriction.

Myocardial ischaemia and arrhythmia are the two stems of cardiac side effects. Figure 3 lists the published case reports of cardiac side effects following injection of Mydriacaine No 2. Interestingly, in over half of case reports the individuals did not have preceding cardiac disease. Sinus tachycardia has also been described in other published research post-injection however arrhythmia and ischaemia are more concerning effects.

CHANGE IN PRACTICE

This case lead to change of regional uveitis guidance. Extreme caution is recommended when considering administering Mydriacaine No 2 to patients with risk factors for or with known cardiac disease. Caution should also take place in the elderly or in cases where bilateral injections are necessary. The importance of acknowledging cardiac side effects when consenting for this injection has also been highlighted to staff working in Ophthalmology.

REFERENCES

- 1 - Pandit J. Tachycardia and myocardial ischaemia following subconjunctival injection of Mydriacaine No. 2. *Eye (Lond)* 1994; **8**: 599.
- 2 - Williams G. Supraventricular ectopic and supraventricular tachycardia following injection of subconjunctival Mydriacaine No 2. *Eye* 2001; **15**: 542-4.
- 3 - Keembiyage R, Simpson H, Lai C. Tachycardia and myocardial ischaemia following subconjunctival injection of mydriacaine (number 02) for vitrectomy procedure. *Clin Experiment Ophthalmol* 2005; **33**: 105-6.
- 4 - Keembiyage R, Raymond G, Newland H. Atrial fibrillation following subconjunctival injection of mydriacaine no 2. *Clin Experiment Ophthalmol* 2006; **34**: 806-8.
- 5 - Rasiah S, Finger R, MacIsaac A, Lim L. Takotsubo syndrome caused by subconjunctival injection of a mydriacaine analogue. *Clin Experiment Ophthalmol* 2016; **44**: 624-5.