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Antiretroviral Use Following Sleeve Gastrectomy: A Case Series

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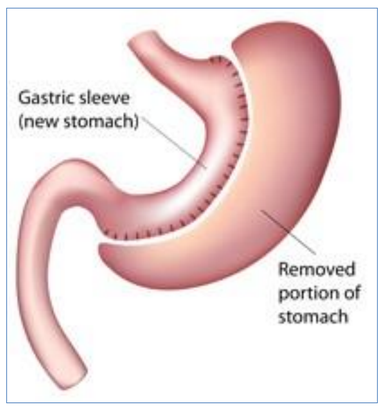
Background

- Obesity in people living with HIV (PLHIV) is increasingly prevalent, as are bariatric surgical interventions including laparoscopic sleeve gastrectomy (SG).
- SG may impact absorption of orally-administered drugs due to gastric surface area reduction of up to 70%, reduced acid secretion, and changes to gastric emptying time[1].
- Antiretroviral therapies (ART) known to have improved absorption in an acid environment, such as rilpivirine and atazanavir, may theoretically have reduced absorption post-SG, particularly if the patient is co-prescribed a proton pump inhibitor.
- Case reports describe patients maintaining viral suppression with various ART regimens after SG, however few describe experience with newer agents such as tenofovir alafenamide (TAF) or elvitegravir[2].



Aim

To describe the management and virological outcomes of four patients who underwent SG while receiving contemporary ART drugs.

Methods

- Four PLHIV underwent SG and pharmacist medication review as part of usual outpatient clinic care or the PROM-GP study (Pharmacist Review Of Medications for PLHIV in General Practice).
- Patients demographics, pre- and post-surgery ART, HIV viral loads and CD4 counts are described
- No therapeutic drug monitoring occurred in these cases.

Results

At the time of surgery, the average age was 45 years (range: 39-51), BMI was 39.7kg/m^2 (33.3-50.8) and CD4 count was 844cells/µL (663-1282). All patients were virologically suppressed.

Table 1. Baseline demographics (pre-operatively)

	Case 1	Case 2	Case 3	Case 4
Gender	M	M	M	M
Age at surgery (years)	39	45	47	51
Duration of HIV infection (years)	18	11	16	25
Pre-surgery weight (kg)	113	125	187	104
BMI (kg/m^2)	37.9	36.9	50.8	33.3
CD4 count pre-operative, cells/µL (% CD4)	663 (23%)	1282 (48%)	730 (32%)	700 (33%)
HIV viral load pre-operative, copies/mL	<20	<20	<20	<20
ART regimen at surgery	Atazanavir, ritonavir, TDF, abacavir, lamivudine (Kivexa®)	efavirenz, TDF, emtricitabine (Atripla®)	TAF, emtricitabine, elvitegravir, cobicistat (Genvoya®)	Atazanavir (unboosted), raltegravir

TDF (Tenofovir disproxil fumarate), TAF (tenofovir alafenamide)

All four cases maintained viral suppression (<20 copies/mL) in the immediate post-surgical period (1-2 months). Two cases (Cases 1 and 4) went on to switch ART for reasons described in Figure 1.

At final follow-up (median 12 months after surgery) all cases had undetectable viral load, and the mean CD4 count was 725 cells/µL.

Results

Table 2. Final Follow-up

	Case 1	Case 2	Case 3	Case 4
Follow-up (months)	58	17	7	4
CD4 count, cells/µL (% CD4)	482 (25%)	1087 (53%)	605 (35%)	724 (34%)
HIV viral load, copies/mL	<20	<20	<20	<20

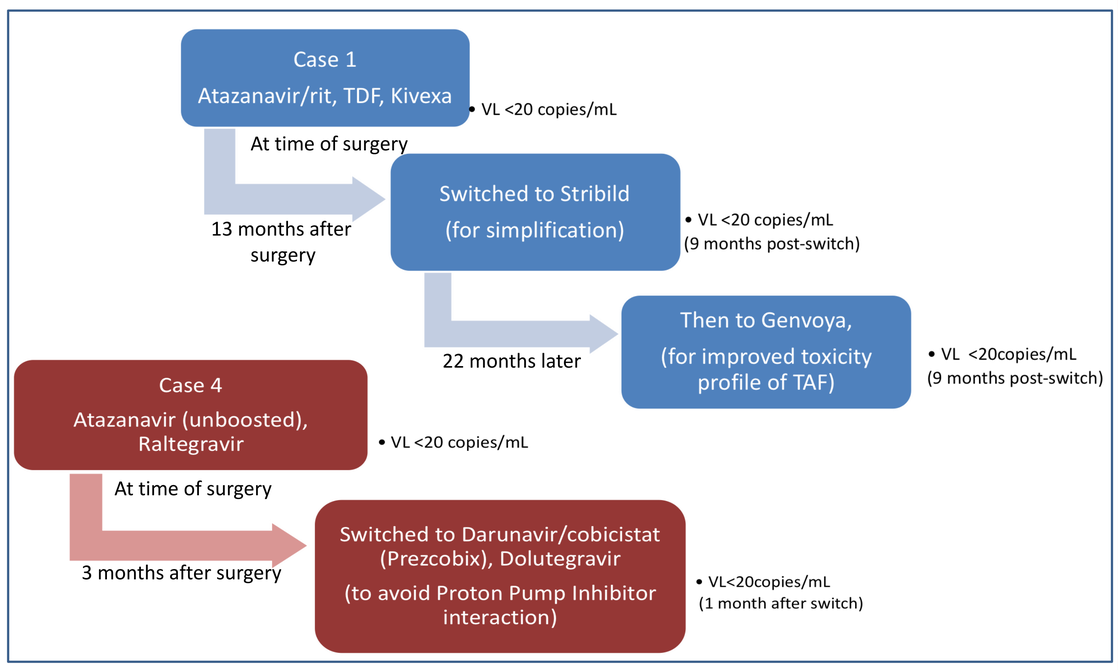


Figure 1: Switch cases remained virologically suppressed

Discussion

Until recently, there has been little evidence guiding clinicians considering ART absorption and efficacy post-sleeve gastrectomy, an increasingly common clinical scenario.

These four cases add to those described in the literature[2], describing patients receiving newer agents: elvitegravir and TAF.

Previous cases have reported reduced atazanavir levels post-SG, due to the acid environment required for optimum absorption. SG reduces gastric surface area and patients are often co-prescribed a PPI. We demonstrate that although unboosted atazanavir may not be the ideal choice of ART, Case 4 maintained a suppressed viral load for two months before a switch was made to optimise therapy.

Pharmacist review of medication management before and after surgery is recommended to assess whether changes are required to optimise overall management of ART and co-medications.

Antiretroviral agents predominately absorbed intestinally are not expected to be compromised after SG, however may be affected by other forms of bariatric surgery not presented here including Roux-en-Y gastric bypass, banding and biliopancreatic diversion[1,2].

This study was limited by varying follow-up time between cases. Future studies should include therapeutic drug monitoring to identify if SG reduces overall exposure to ART.

Conclusion

These cases provide reassurance that patients are likely to remain virologically suppressed with the use of newer ART regimens, including Genvoya®, after interventions removing a large portion of the stomach.

Disclosure of Interest

Alfred Health Pharmacy received funding for PROM-GP study from the Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine, through support from Viiv Healthcare (2017-18) and the 2016 Gilead Fellowship Grant.

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