

# Unusual Weight Gain After Antiretroviral Regimen Switch: A Case Report

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## INTRODUCTION

- Evolving evidence suggests integrase strand transfer inhibitor (INSTI)-based antiretroviral therapy (ART) is associated with weight gain.<sup>1</sup>
- Switching from fixed-dose EFV/TDF/FTC to an INSTI-based regimen may result in more significant increases in weight.<sup>2</sup>
- INSTI-associated weight gain in the setting of pre-existing HIV-associated lipodystrophy has not been demonstrated.

## CASE PRESENTATION

- A 46 year old female presented to transfer HIV care.
- Her antiretroviral regimen was LPR/RTV/3TC/EFV.
- CD4 count – 460 cells/mcL. Viral load – 86 copies/mL.
- Past medical history significant for Hepatitis C, genital herpes, chronic diarrhea, and insomnia.
- **Chief Complaint:**  
“I want something to gain weight”.

## PHYSICAL EXAM

Vital signs: **BP: 119/81, Weight: 69 kg (153 lbs)**

HEENT: Unremarkable. No thyroid enlargement

LUNGS: Clear to auscultation

HEART: Regular rate and rhythm

ABD: Obese without hepatosplenomegaly

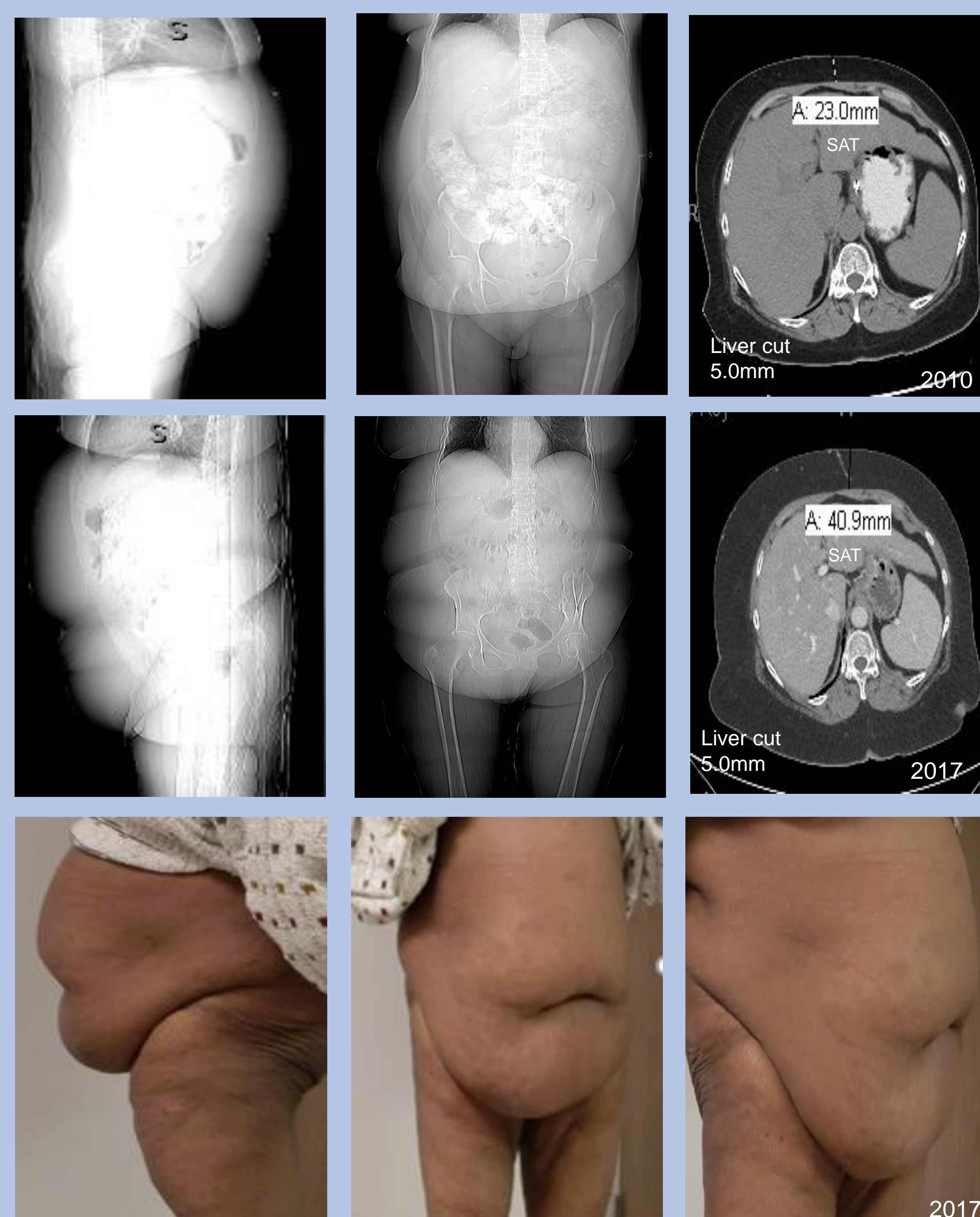
M/S: Muscle loss of face and legs

## CLINICAL COURSE

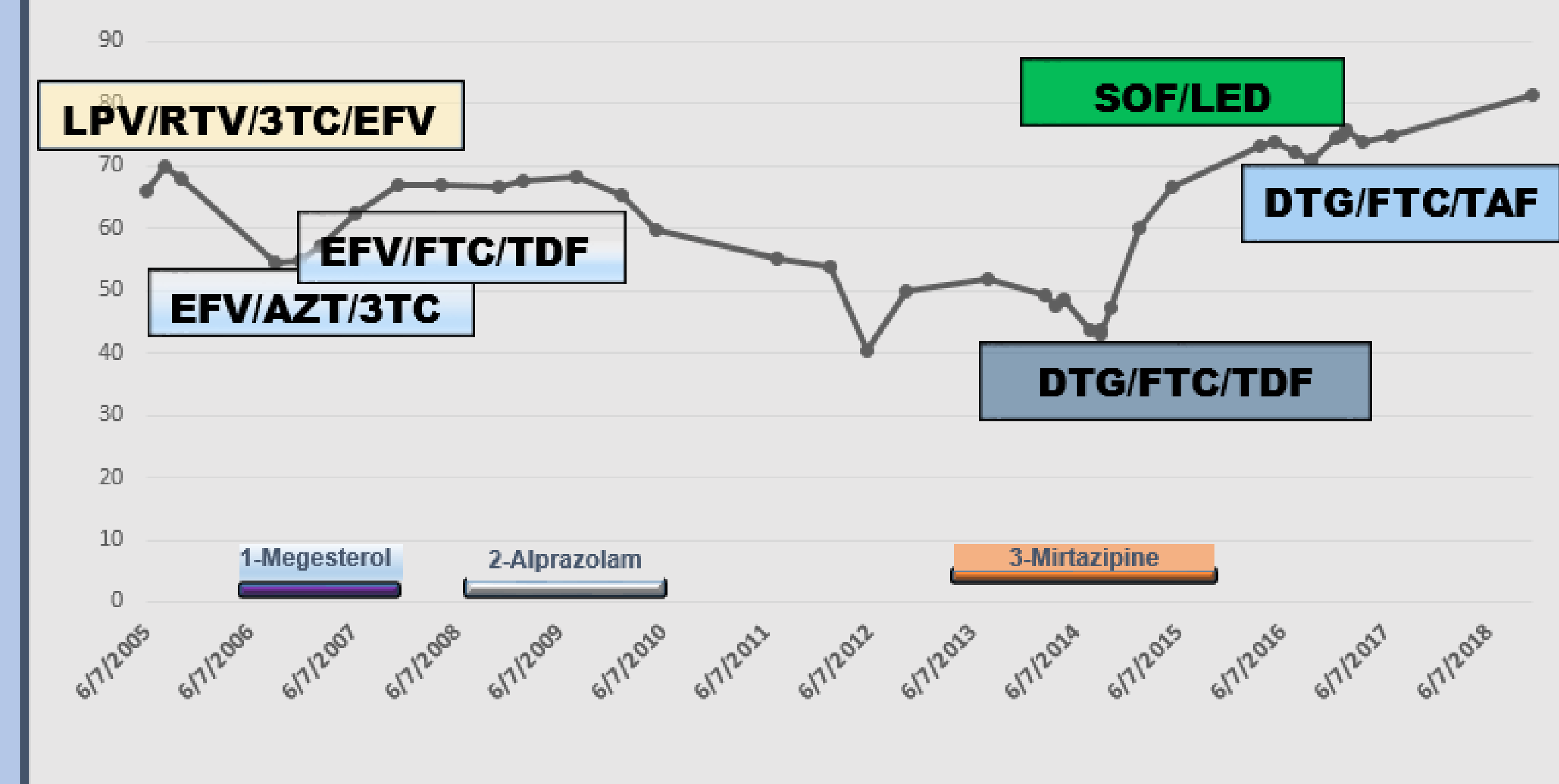
- Patient complained of poor weight gain at each visit.
- Tried various appetite stimulants but failed to achieve desired effect.
- Viral suppression was achieved and maintained.
- Hospitalized for altered mental status at which time antiretroviral regimen was changed from EFV/FTC/TDF to FTC/TDF and DTG.

## IMAGING

Lateral-Scout AP-Scout CT-Liver Cut



## Weight in Kilograms



**Abbreviations**  
HIV- Human immunodeficiency virus  
ART- antiretroviral therapy  
LPV/RTV/3TC/EFV – lopinavir/ritonavir/lamivudine/efavirenz  
EFV/AZT/3TC – efavirenz/zidovudine/lamivudine  
EFV/FTC/TDF – efavirenz/emtricitabine/tenofovir disoproxil fumarate

DTG- dolutegravir  
FTC/TDF- emtricitabine/tenofovir disoproxil fumarate  
DTG/FTC/TDF – dolutegravir/emtricitabine/tenofovir disoproxil fumarate  
SOF/LED – sofosbuvir/ledipasvir  
DTG/FTC/TAF – dolutegravir/emtricitabine/tenofovir alafenamide  
SAT- subcutaneous abdominal tissue

## RESULTS

- Patient gained an excess of **31.4 kg (69.08 lbs.)** after switch from EFV/FTC/TDF to an INSTI-based regimen.
- Her gain in weight resulted in a disproportionate increase in subcutaneous abdominal fat (SAT).
- Peripheral fat loss was essentially unchanged.
- Facial lipoatrophy improved. Patient very pleased.
- Plastic Surgery consulted for removal of redundant abdominal fat.

## DISCUSSION

These outcomes are consistent with the recent reports of weight gain associated with integrase strand transfer inhibitor-based regimens. In addition, the switch from fixed dose EFV/TDF/FTC to an INSTI regimen may have contributed the rather significant increase in gain.

## CONSIDERATIONS

- Patient presented with pre-existing features of lipodystrophy likely secondary to previous use of protease inhibitors.
- She was at her lowest body weight at time of regimen change.
- It is not clear if she continued on appetite stimulants immediately after regimen change.
- Hepatitis C treatment was initiated after HIV regimen change to FTC/TDF and DTG.
- HIV weight-related stigma, generalized depression and anxiety were underappreciated.

## CONCLUSIONS

The associations between INSTIs and weight gain require additional investigations. The impact on pre-existing abnormal fat distributions also warrants research. In addition, providers must be geared to address body image perceptions and weight management strategies when initiating this newer class of antiretroviral medications.

## REFERENCES

<sup>1</sup>Kerchberger, A.M., Eng, M., Sheth, A.N., Angert, C.D., Mehta, C.C., Summers, N.A., Ofotokun, I., Gustafson, D., Weiser, S., Kassaye, S., Konkole-Parker, D., Sharma, A., Adimora, A., Bolivar, H., & Lahiri, C.D. (2019). *Integrase Strand Transfer Inhibitors are associated with weight gain in women*. [Program Abstract]. Conference on Retroviruses and Opportunistic Infections. Seattle, Washington, March 4-7, 2019. Emory University School of Medicine, Atlanta, GA, USA.

<sup>2</sup>Norwood, J., Turner, M., Boffill, C., Rebeiro, P., Shepherd, B., Bebawy, S., ... Koethe, J. R. (2017). Brief Report: Weight Gain in Persons With HIV Switched From Efavirenz-Based to Integrase Strand Transfer Inhibitor-Based Regimens. *Journal of acquired immune deficiency syndromes* (1999), 76(5), 527–531. doi:10.1097/QAI.0000000000001525

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