7. EDTA contamination vs renal impairment

Ward	Surgical	ICU	D.O.B/Age	17/04/1994
Consultant				
				-

Potassium: 6.1 H mmol/L [3.5 – 5.1]

No diagnosis on request form, unable to get hold of clinician.

Authorised by	Dr TA Gcingca	on 27/11/2019	at 08:37	
Sodium		137	mmol/L	136 - 145
Authorised by Potassium	Dr TA Gcingca	on 27/11/2019 6.1 H	at 08:37 mmol/L	3.5 - 5.1
Authorised by	Instrument on	27/11/2019 at	06:11	
Chloride		106	mmol/L	98 - 107
Authorised by	Dr TA Gcingca	on 27/11/2019	at 08:37	
Urea		19.7 H	mmol/L	2.1 - 7.1

	Authorised by Instrument on 27/11,	/2019 at	06:11	
Creat	tinine	198 H	umol/L	64 - 104
eGFR	(MDRD formula)	38	mL/min/1.73 m ²	
	MDRD-derived estimation of GFR may	significa	antly underestimate true G	FR
	in patients with GFR > 60 $\rm mL/min/1$.73m^2.]	It may also be unreliable :	in
	the case of: age <18 years or >70 \pm	years; pre	egnancy; serious co-morbid	
	conditions; acute renal failure; ex	xtremes of	f body habitus/unusual diet	t;
	gross oedema. The MDRD-eGFR used he	ere does r	not employ an ethnic factor	r
	for race.			

Calcium	1.17 L	mmol/L	2.15 - 2.50
Authorised by Dr TA Gcingca	on 27/11/2019	at 08:37	
Magnesium	0.97	mmol/L	0.63 - 1.05
Authorised by Instrument on	27/11/2019 at	06:11	

Inorganic phosphate	1.46	H	mmol/L	0.78 -	- 1.42

Authorised by Instrument on 27/11/2019 at 06:11

Authorised by Dr TA Gcingca on 27/11/2019 at 08:37

Indices in serum:

Haemoglobin index	Not detected
Bilirubin index	Trace
Lipaemia index	Not detected

Authorised by Instrument	on 27/11/2019 at	05:44	
White Cell Count	10.17	x 109/L	3.92 - 10.40
Red Cell Count	3.32 L	x 1012/L	4.50 - 5.50
Haemoglobin	9.8 L	g/dL	13.0 - 17.0
Haematocrit	0.274 L	L/L	0.400 - 0.500
MCV	82.5 L	fL	83.1 - 101.6
MCH	29.5	pg	27.8 - 34.8
MCHC	35.8 H	g/dL	33.0 - 35.0
Red Cell Distribution Width	15.2	8	12.1 - 16.3
Platelet Count	116 L	x 109/L	171 - 388

Potassium ethylenediaminetetraacetic acid (EDTA) is a sample tube anticoagulant used for many laboratory analyses. Gross potassium EDTA contamination of blood samples is easily recognised by marked hyperkalaemia and hypocalcaemia. Subtle contamination is a relatively common, often unrecognised erroneous cause of spurious hyperkalaemia. In the case illustrated, it would be difficult to confidently exclude EDTA contamination based on these results alone. There is renal impairment which may explain the hyperkalaemia. The increased phosphate coupled with the renal impairment would also be an argument for the hypocalcaemia present.

In this instance, comparison with previous results was useful. The results are most likely due to renal impairment. As the patient had been admitted to the ward for a week, it was useful to be able to compare previous results. The gradual decline in renal function helped to explain the biochemical findings. As the samples were drawn of different days by different persons, the likelihood of EDTA contamination on all the days is relatively slim.

However, it is important to be cognisant that mild EDTA contamination may cause subtle shifts in results that may have negative consequences for the patient if erroneously acted on.