# 20. Alpha-foetoprotein

| **Ward** | Emergency unit | **D.O.B/Age** | 07/08/1968 |
|---|---|---|---|
| **Consultant** | Dr C. Hudson | | |

Request form: No clinical information provided

Unavailable.

Unavailable.

| | | | |
|---|---|---|---|
| Sodium | | | **130 L** |
| mmol/L | 136 – 145 | | |
| Potassium | | | 3.7 |
| mmol/L | 3.5 – 5.1 | | |
| Urea | | | 2.9 |
| mmol/L | 2.1 – 7.1 | | |
| Creatinine | | | 64 |
| umol/L | 49 – 90 | | |
| eGFR (MDRD formula) | | >60 | mL/min/1.73 m2 |

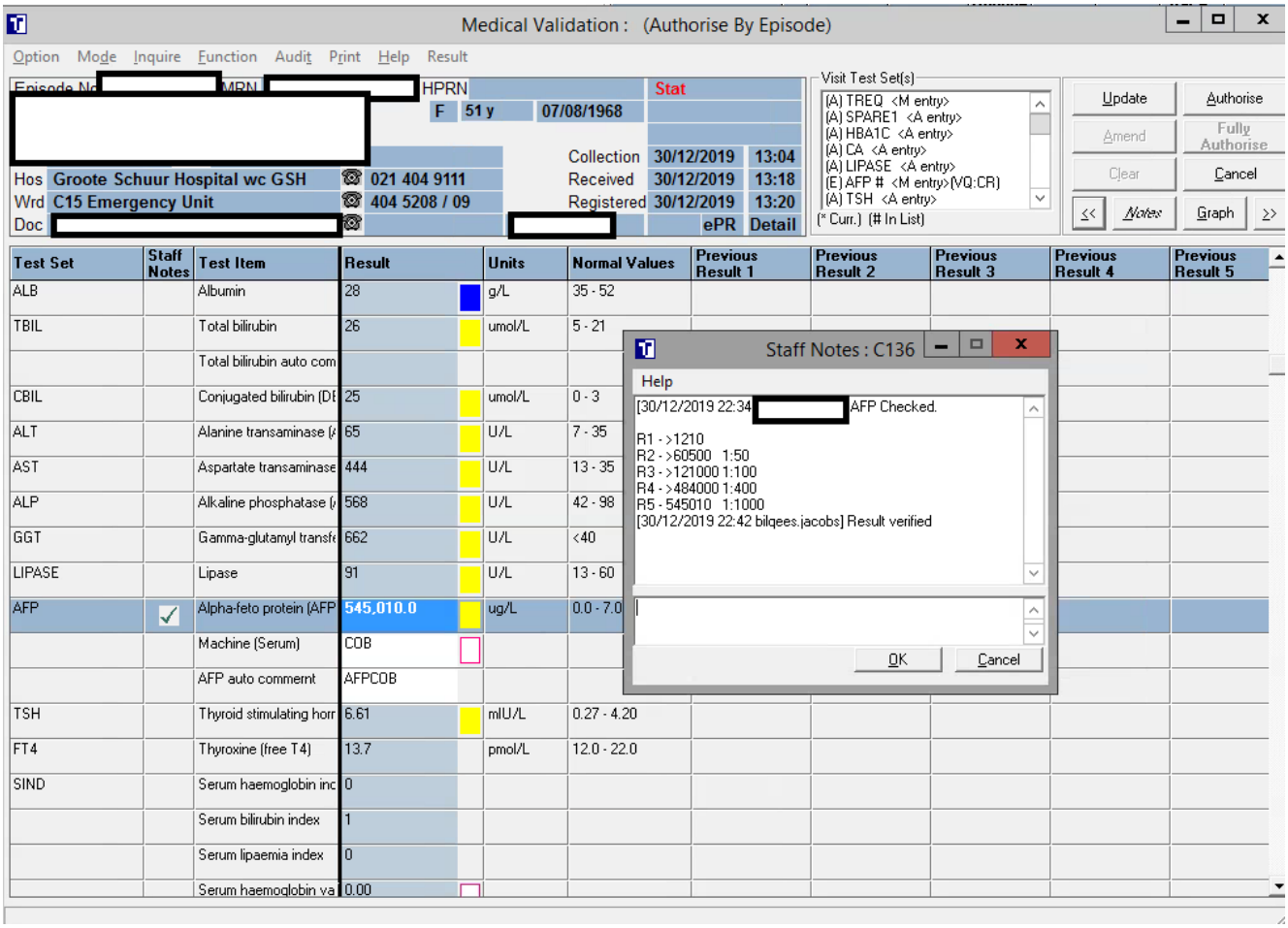
**Glycated haemoglobin (HbA1c):**

| | | | |
|---|---|---|---|
| Glycated haemoglobin (NGSP) | | 6.5 | % |
| Glycated haemoglobin (IFCC) | | | 48 mmol/mol |
| Estimated average glucose (eAG) | | 7.8 | mmol/L |

| | | |
|---|---|---|
| Calcium | | 2.20 |
| mmol/L | 2.15 – 2.50 | |
| Total protein | | **86 H** |
| g/L | 60 – 78 | |
| Albumin | | **28 L** |
| g/L | 35 – 52 | |
| Total bilirubin | | **26 H** |

| | | | |
|---|---|---|---|
| umol/L | 5 – 21 | | |
| Conjugated bilirubin (DBil) | | **25 H** | |
| umol/L | 0 – 3 | | |
| Alanine transaminase (ALT) | | **65 H** | |
| U/L | 7 – 35 | | |
| Aspartate transaminase (AST) | | **444 H** | |
| U/L | 13 – 35 | | |
| Alkaline phosphatase (ALP) | | **568 H** | |
| U/L | 42 – 98 | | |
| Gamma-glutamyl transferase (GGT) | | **662 H** | |
| U/L | <40 Lipase | | |
| **91 H** U/L | 13 – 60 | | |
| Alpha-feto protein (AFP) | | **545010.0 H** | |
| ug/L | 0.0 – 7.0 | | |
| Thyroid stimulating hormone | | **6.61 H** | |
| mIU/L | 0.27 – 4.20 | | |
| Thyroxine (free T4) | | 13.7 | |
| pmol/L | 12.0 – 22.0 | | |
| White Cell Count | | 8.93 | x |
| 109/L | 3.90 – 12.60 | | |
| Red Cell Count | | **2.92 L** | x |
| 1012/L | 3.80 – 4.80 | | |
| Haemoglobin | | **9.4 L** | |
| g/dL | 12.0 – 15.0 | | |
| Haematocrit | | **0.278 L** | |
| L/L | 0.360 – 0.460 | | |
| MCV | | 95.2 | |
| fL | 78.9 – 98.5 | | |
| MCH | | 32.2 | |
| pg | 26.1 – 33.5 | | |
| MCHC | | 33.8 | |
| g/dL | 32.7 – 34.9 | | |
| Red Cell Distribution Width | | **19.5 H** | |
| % | 12.4 – 17.3 | | |
| Platelet Count | | 246 | x |

109/L 186 – 454




Abdominal ultrasound +/- CT scan may be helpful in detecting presence of liver mass +/- intra-abdominal masses.

# Final diagnosis

?Hepatocellular carcinoma

This case allowed me to become familiar with the concepts related to limitations of an assay. Having come across the need for dilution and the concept of high-dose hook effect, I found it interesting to see the gradual increase in AFP value as further dilutions were done. These are terms and concepts that this case allowed me to become familiar with.

**Limit of Blank:** This is the highest apparent analyte concentration expected to be found when replicates of a blank sample (containing no analyte) are tested. Detects “noise” that could interfere with the result.

**Limit of Detection:** This refers to the lowest analyte concentration likely to be reliably distinguished from the limit of blank and at which detection is feasible. LoD is determined using measured limit of blank, and test replicates known to contain a low concentration of an analyte.

**Limit of Quantitation:** This is the lowest concentration at which the analyte can not only be reliably detected but also at which some predefined goals for precision and bias are met. The LoQ may be equivalent to the LoD or it could be at a higher concentration. This is the limit that is clinically significant.