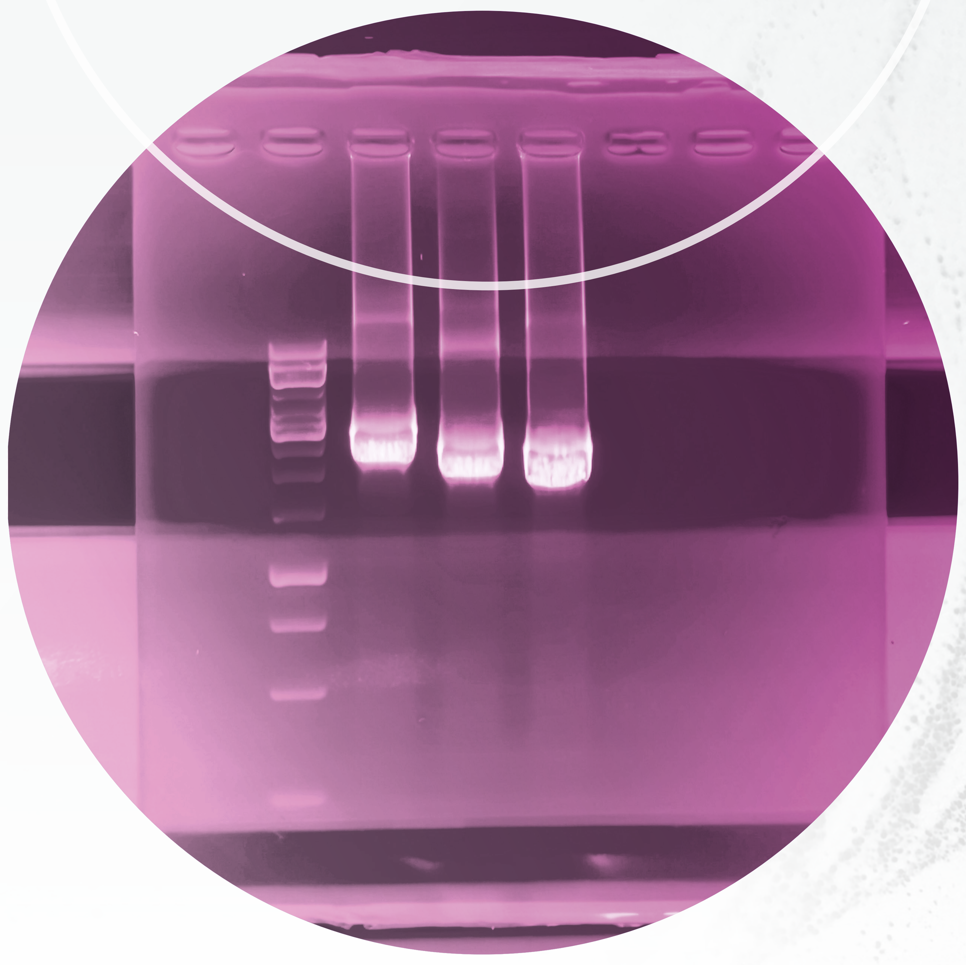
An incidental finding in a CSF Oligoclonal Bands EQA



P Graham, D Tran

The Royal College of Pathologists of Australasia Quality Assurance Programs (RCPAQAP), St Leonards, NSW, 2065, Australia

Introduction

The RCPAQAP offers a CSF Oligoclonal EQA designed to assess interlaboratory performance in the detection of oligoclonal bands in CSF and serum. The samples are produced using human CSF and serum sourced from donated material that was no longer required for clinical use and would otherwise be discarded. Occasionally a 'challenge' sample containing haemolysis is issued to determine if laboratories are able to differentiate between oligoclonal/monoclonal bands and potential interference from haemolysis. We sought to investigate the lack of consensus for a sample in the 2024 program that was not expected to have any oligoclonal bands.

Method

A CSF (with visible haemolysis) and 'matching' serum sample that were not known to contain any oligoclonal bands were distributed to laboratories enrolled in the first survey of the 2024 program. The returned results were assessed, and the unexpected presence of oligoclonal bands in the CSF reported by 46% of participants was noted. To further investigate the discrepancy, photos of the sample's electrophoretic gels were requested from the CSF AACB/RCPAQAP Advisory Committee. Submitted results were then reviewed in conjunction with the gels provided.

Results

Of the 24 returned CSF results, 13 reported 'Absent' as expected, but 11 noted the presence of oligoclonal bands. 22 laboratories reported 'Absent' for the matching serum, and 2 returned an 'Oligoclonal' result. Four gels of the same samples were provided. Two gels were from a Helena SPIFE electrophoresis method, of which one had no visible bands, and the other had faint bands for the CSF. Of the other two gels, the Sebia Hydrasys showed absent, but a manual immunoblotting gel demonstrated clearly visible bands (Figure 1). None of the example gels reported any bands for the serum (Table 1). While haemoglobin bands were detected in the CSF for some of the gels, they were interpreted correctly as due to haemolysis. Due to the lack of consensus, it was decided to issue a revised report with an associated educational commentary.

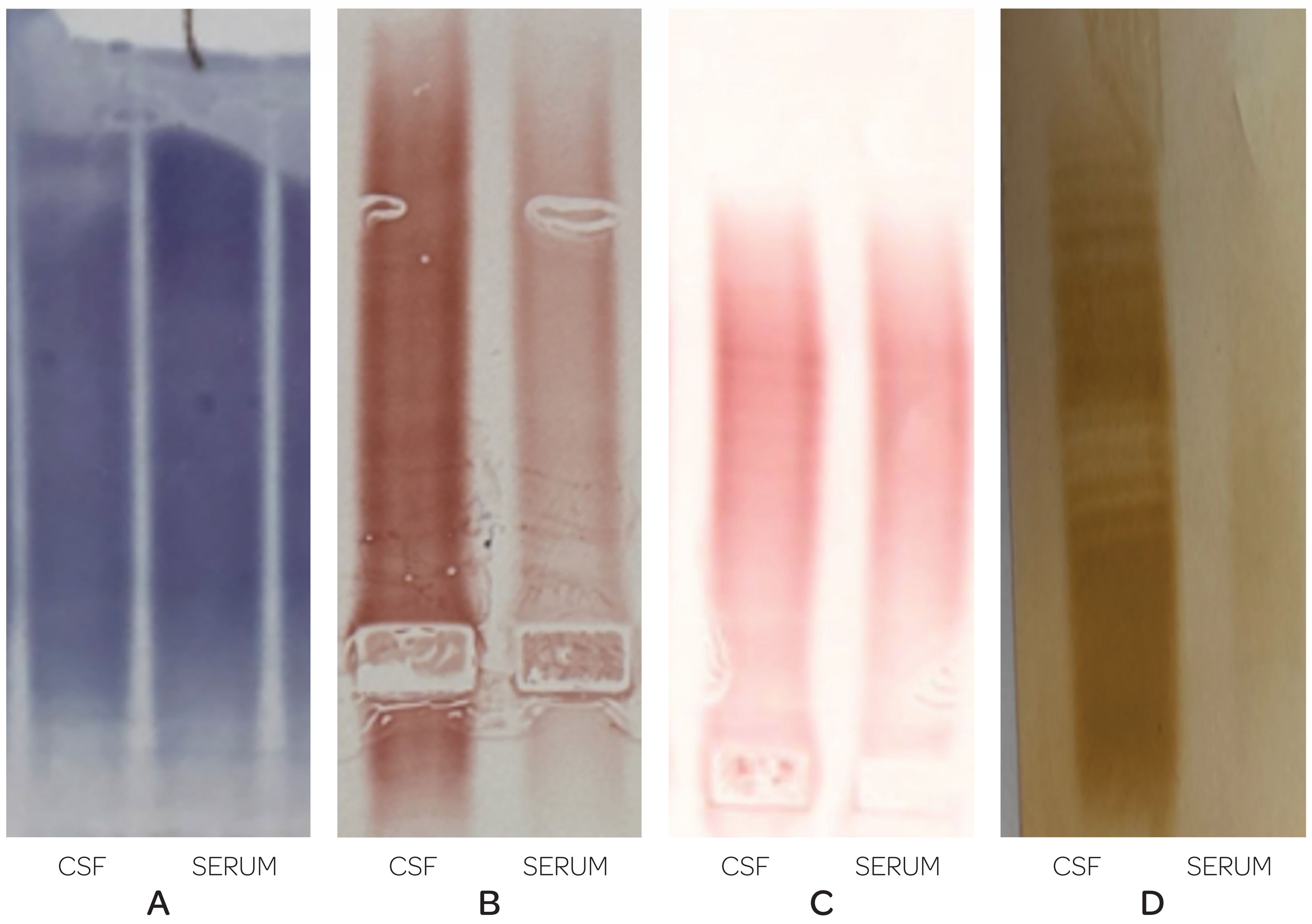


Figure 1 Example gels provided for Sebia Hydrasys (A), Helena SPIFE (B and C) and 'Manual IEF' (D)*

Table 1 Summary of reported results for the example gels in Figure 1*

	A	B	C	D
Oligoclonal bands: CSF	Absent	Absent	Oligoclonal	Oligoclonal
Oligoclonal bands: Serum	Absent	Absent	Absent	Absent
Clinical Evaluation:	Normal	Normal	Local Synthesis	Local Synthesis
Measurement System	Sebia Hydrasys	Helena SPIFE electrophoresis	Helena SPIFE electrophoresis	Manual Method
Analytical Principle	Isoelectric focusing (IEF) with immunofixation	Isoelectric focusing (IEF) with immunoblotting	Isoelectric focusing (IEF) with immunoblotting	Isoelectric focusing (IEF) with immunoblotting
Stain used	Protein dye and labelled antisera	Labelled antisera	Protein dye and labelled antisera	Labelled antisera

Discussion and Conclusion

The incidental finding of unexpected oligoclonal bands by some methods wasn't able to be fully resolved with this limited study. However, differing sensitivities due to pre-analytical or analytical differences may be a contributing factor. All the methods in Table 1 use IEF/immunoblotting, which is known to have good sensitivity.[1] While the presence of oligoclonal bands in this QAP CSF sample was an incidental finding, it still served as educational value for laboratories to potentially guide on method limitations when interpreting patient sample gels.

Acknowledgment:

* The gels and accompanying interpretations kindly provided by the AACB/RCPAQAP CSF Advisory Committee

References:

1. Tobojevic-Cepe T. Detection of Oligoclonal Ig Bands:Clinical significance and Trends in Methodological Improvement. JIFCC. 2004;15: 86-94