ENDOPHTHALMITIS AFTER INTRAVITREAL INJECTIONS

A CASE SERIES ON POTENTIAL PATIENT-RELATED RISK FACTORS

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INTRODUCTION

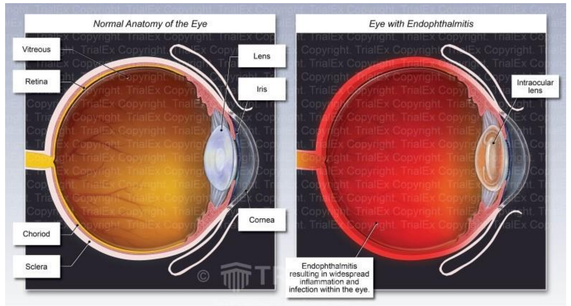


Figure 1 - Illustration of endophthalmitis[1]

- Rare yet visually devastating[2]
- Rate of endophthalmitis: 1 in 2,000 – 5,000 injections (0.02% – 0.05%)[2]
- Limited literature on patient-related risk factors
- Aim: Review past incidences of endophthalmitis and identify potential patient-related risk factors

METHODS

- Retrospective design
- Site: Hereford County Hospital
- Duration: January 2011 – November 2023

Electronic medical records containing the word 'endophthalmitis'

Suspected / confirmed diagnosis of endophthalmitis checked by

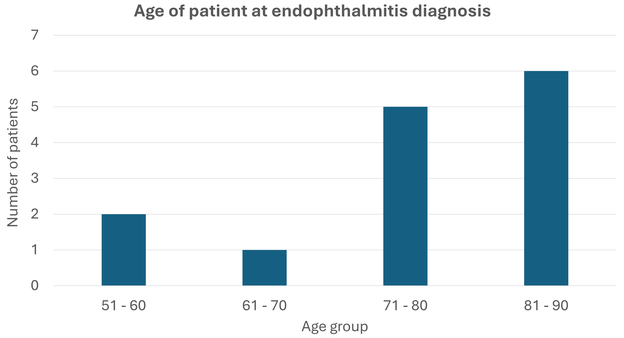
1. presence of vitreous tap or aqueous tap consent form
2. documented presenting signs and symptoms

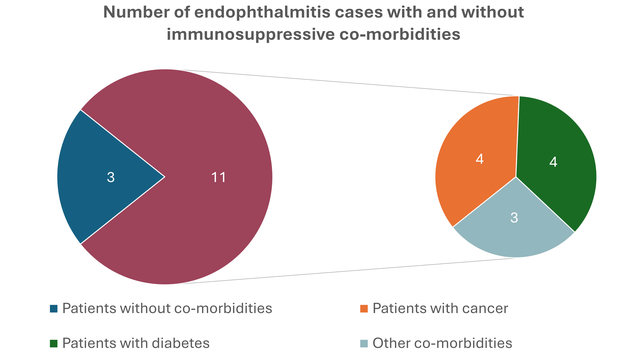
Additional data collected

1. Patient age at diagnosis and gender
2. Types of endophthalmitis based on microbiology results
3. Injection details (drugs injected, needle orientation and injection site)
4. Visual acuity before intravitreal injection, at presentation and 1 year
5. Co-morbidities and past medical history

RESULTS

Total incidences of endophthalmitis	**14**
Incidences of infective endophthalmitis	7
Incidences of sterile endophthalmitis	7
Median number of injections before endophthalmitis (IQR)	**18.5 (4 – 24)**
Median number of injections before infective endophthalmitis (IQR)	19 (16 – 29)
Median number of injections before sterile endophthalmitis (IQR)	4 (2 – 22)
Median age at endophthalmitis diagnosis (IQR)	**80 (71 – 84)**





	With co-morbidities	Without co-morbidities
Risks of endophthalmitis		
Number of incidences	11	3
Median number of injections before endophthalmitis (IQR)	16 (3 – 24)	22 (19 – 33)
Number of cases with infective endophthalmitis	5 (45.5%)	2 (66.7%)
Visual outcomes		
Number of cases with 'no perception light', 'light perception', or 'hand movement' as visual acuity at onset (%)	8 (72.7%)	1 (33.3%)
Mean visual acuity at onset (LogMAR)	2.15	1.12
Mean final visual acuity after treatment (LogMAR)	1.11	0.41
Mean gain in visual acuity after treatment (LogMAR)	1.04	0.71

DISCUSSION

- **Current literature on identified potential risk factors**
  - *Endophthalmitis after intravitreal injections*: 1 cohort study by Patel SN et al. investigating systemic immunosuppression due to immunosuppressive drugs as risk factor for endophthalmitis after IVI: **Statistically significant difference between immunosuppressed vs non-immunosuppressed groups**[3]
  - *Endophthalmitis post-cataract surgery*
    - Age: 1 cohort study – statistically significant difference between <80 years vs ≥80 years[4]
    - Cancer: 2 cohort studies – both found statistically insignificant difference between cancer vs non-cancer groups[4,5]
    - Diabetes: 1 cohort study – statistically significant difference between diabetic vs non-diabetic groups with significant dose-response relationship of increased endophthalmitis risk in diabetic patients[6]
- **Concern: Whether extrapolation of data from endophthalmitis post-cataract surgery will give reliable evidence for endophthalmitis after injections and other intraocular procedures?**[7]

CONCLUSION

- **Immunosuppression** seems to be associated with increased risk of endophthalmitis post-intravitreal injections
  - Immunosuppressive chronic diseases, namely diabetes and probably cancer
  - Immune dysfunction due to advanced age
- **Lack of evidence** on patient-related is factors for endophthalmitis following intravitreal injections and ophthalmic surgeries other than cataract surgery
- **Future work**
  - Scoping or systematic review on current research on non-surgical risk factors for endophthalmitis
  - Stronger (and ideal) design: Prospective multi-centred matched cohort study
    - Include all types of endophthalmitis and other intraocular procedures

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