Medical Report

Prepared by

Ramzi Freij FCEM FRCS MBBS

Below is a resumé of my work experience:

Degrees held:
Bachelor of Medicine, Bachelor of Surgery, University of London 1986
Fellowship of the Royal College of Surgeons of Glasgow 1993
Fellow of the College of Emergency Medicine 1996

Previous and current NHS positions:
Consultant and Head of Service Mayday University Hospital 1996-2000.
Consultant and Head of Service East Kent Hospitals NHS Trust running five A&E Departments 2000-2004.
Consultant (Head of Service from 2005 to 2007) for Nottingham University Hospitals Emergency Services from 2004 to the present time.

Past and present positions held:
Trustee of the Essex and Herts Air Ambulance Trust
Past Medical Director of the Essex and Herts Air Ambulance Trust.
Past Medical Director of the Kent and Surrey Sussex Air Ambulance Trust.
Past Medical Director of the North West Air Ambulance Trust.
Trustee and Co-Founder of UK Helicopter Emergency Medical Services (HEMS)
Past Chairman of the Clinical Sub Group of the Air Ambulance Association and UK HEMS
Past Lecturer at University of Hertfordshire and Paramedical Sciences
Past Examiner for London Ambulance Service IHCD (Stage 1/Stage 2)
Past Examiner at the University of London

Publications:
Twenty Scientific Papers published.

Current Medical Practice:
I work in one of the busiest A&E Departments in Europe (160,000 attendees per annum). My everyday practice consists of seeing patients who are seriously ill or injured. I review patients who have an injury severity score of over 16. I have expertise in the management of major trauma and major illness. I also have expertise in the management of minor illness and minor injuries such as spinal soft tissue injuries and limb injuries. I manage upper and lower limb fractures. I also have expertise in the management of traumatic chest injuries. I am currently the ENP clinical lead and thus responsible for training and mentoring their practice through case based discussions and leading on development days.

Personal details

Name

Date of Birth

Address

Occupation

Date of incident

Date of examination

Place of examination

Report Reference

Prepared at the request of

Reference

Date prepared

Identification

1. I was able to identify Ms by her Photo licence.

2. Ms was unaccompanied.

Methodology

3. I am instructed by Solicitors to provide a medical report on the injuries sustained by the Claimant following the index accident.

4. This report is based on a written letter of instruction from the Claimant's Solicitor, verbal information provided to me by the Claimant during the course of the examination, along with my own clinical examination of the Claimant.

History of incident

5. Ms was the Driver of a vehicle; she was wearing a seatbelt.

6. Ms was stationary at traffic lights when another vehicle collided with the rear of the vehicle. The seat belt tensioned. She was jolted.

7. Ms went to see her GP.

8. Ms is still having physiotherapy as organised by the GP.

9. Ms had 1 other accident in 2008 from which - she informs - that she had recovered.

10. Ms has no relevant past medical history.

Review of GP records

11. The records contained the following information that was considered as having relevance to the index accident. The information has been cut from the medical records and pasted into the report to avoid any errors in dictation, and also to ensure that the review is the complete entry of the clinician.

12. The records indicate that Ms saw her GP twice, and was referred for physiotherapy as she was still complaining of neck pain.

13. I note that the third party insurers have raised an allegation of LVI. The repair bill provided with the instructions does not include forensic engineering evidence and there is no indication of Δ V.

Current Problems

14. Ms reports the following problems:

15. Ms has neck pain. She has clicking in her neck.

16. Ms has thoracic spine pain.

17. The pain started 3 days after the accident. She was shaken and dazed.

18. The examples below are activities of daily living that Ms struggles with. She attributes the difficulties to the accident.

19. Ms is stiff in the morning.

20. Ms finds ablutions painful. Washing her hair is painful, as is blow drying it.

21. Ms rates her pain as moderate.

22. Ms can carry only light shopping without pain.

23. Ms finds reading for long with the head bent forward causes pain.

24. Ms has no occipital headaches.

25. She uses GP prescribed analgesic cream, Co-codamol and Paracetamol for analgesia.

26. Ms finds it difficult to drive in an urban environment and clearing her blind spot causes pain. Driving beyond 30 minutes is painful.

27. Ms is disturbed at night.

28. Ms has no sporting hobbies.

29. Ms cannot sit for longer than 15 minutes without pain.

Examination

30. Examination of Ms ’s neck revealed:

- flexion was 75% of normal
- extension was 25% of normal
- right rotation was 75% of normal
- left rotation was 75% of normal
- left lateral flexion was 50% of normal
- right lateral flexion was 50% of normal
- on palpation of her neck, there was pain in the lower and mid neck musculature

31. Examination of Ms 's shoulders revealed a full range of movement.

32. Examination of Ms 's thoracic spine revealed rotation of 75% of normal and pain on palpation of the para-vertebral muscles.

Conclusion and Prognosis

33. Whiplash is a relatively common injury that occurs to a person's neck following a sudden acceleration deceleration force. This most commonly occurs from motor vehicle accidents.

34. Whiplash is typically not a life threatening injury but can lead to a prolonged period of partial disabilities. Recent studies, using high speed camera and sophisticated crash test dummies, have determined that, after

an impact, the lower cervical vertebrae are forced into a position of hyper-extension whilst the upper cervical vertebrae are in a hyper-flexed position. This leads to an abnormal S-shape in the cervical spine after the impact that is different from the normal position, and causes damage to the soft tissues that hold the cervical vertebrae together – i.e. the ligaments, the facet capsules and the muscles. Common symptoms from whiplash injury include neck pain and stiffness, headaches, shoulder pain, dizziness, fatigue, jaw pain, arm weakness, tinnitus and back pain.

35. In the most severe and chronic cases of whiplash associated disorders, patients may suffer from depression, anger, frustration, anxiety, stress, drug dependency, post-traumatic stress disorder and sleep disturbances.

36. The mainstay of treatment is patient education and encouraging movement, achieved through physiotherapy or exercises given by the General Practitioner.

37. Most people will have recovered within 12-24 months of the injury. However, 18% of patients continue to have significant pain two years after the accident.

38. Patients that do not recover within two years tend to be older, and/or had pain which came on soon after the accident, and/or had their head rotated to either side at the time of impact. Pre-morbid conditions, such as arthritis or headaches or neck pain, increase the longevity of post-traumatic neck pain.

39. With respect to the legal system and neck pain, there does not appear to be any evidence to indicate that personal injury litigation has any impact on clinical outcome. Studies by Norris and Watt, and Parinar and Raymayers concluded that law suits did not influence the timing or degree of recovery.

40. The Société d'assurance automobile du Québec (SAAQ) is the public auto insurer in the Province of Quebec. The SAAQ sponsored a task force on whiplash-associated disorders (WAD) which submitted a report in early 1995. The Task Force Report makes specific recommendations regarding the prevention, diagnosis and treatment of WAD. Included in the report is a proposal for classifying WAD together with patient management guidelines. The classification advocated by the QTF has been recommended for use by the NICE clinical knowledge summary for whiplash injury management (last revised in April 2015). The same classification is still used in the Health Technology Assessment (2012) *Managing injuries of the neck (MINT): a randomised controlled trial of treatment for whiplash injuries*..

41. The Quebec Task Force Classification Scheme for WAD is based on clinical symptoms and signs; it is subdivided into 5 grades.

QTF Classification	**Clinical Presentation**
Grade 0	No complaint about neck pain; no physical signs
Grade I	Neck complaint of pain, stiffness or tenderness only; no physical signs
Grade II	Neck complaint; musculoskeletal signs

	including: • Decreased range of movement • Point tenderness
Grade III	Neck complaint Neurological signs including: • Decreased or absent deep tendon reflexes • Muscle weakness • Sensory deficits
Grade IV	Neck complaint and fracture or dislocation

42. Ms was involved in an accident as detailed above.

43. She has a Grade II injury on the Quebec Whiplash Associated Disorder score.

44. She has a musculoskeletal injury to her thoracic spine.

45. She would benefit from continuing physiotherapy (as organised by the GP) and may require further therapy organised privately.

46. I have noted the record of the GP examination and the repair bills. However, my assessment of Ms indicates that she should be re-examined in 3 months.

47. There is a range of opinion regarding the occurrence of injuries following road traffic accidents. The range is from no injuries occurring, to injuries that may last for 30 years. My opinion is based on history, examination, published literature and my professional experience.

48. With respect to LVI, the following should be taken into consideration:

a) Evidence from the Spine Research Institute of San Diego in conjunction with the Centre for the Research of Automotive Safety and Health in Texas A and M University. A total of almost fifty individual crashes ranging from as little as two miles per hour to nearly fifty miles per hour were tested (a human subject's crash test). The following are some of the observations:

- Occupants may experience significant head and truncal acceleration without noticeable vehicle damage.
- **Occupants of a vehicle struck from the rear undergo approximately three times the amount of force active in the cervical spine compared to occupants of striking vehicles**.
- The vehicle speed changes are not linearly associated with occupant head and truncal acceleration.
- Most vehicles tested have the ability to withstand impacts resulting in Delta Vs in excess of five miles per hour without noticeable vehicle bumper damage.

b) Other studies such as the study by Wester et al (2005) have demonstrated that structures such as the alar ligament, transverse ligament and tectorial and posterior Atlanta occipital membranes show high grade lesions after whiplash injuries six years after trauma confirmed with MRI scanning.

c) From the most recent research, it is clear that the association with the mechanism and injury is complex. The forces that are produced are in excess of 5 G within 100 milliseconds at seventeen miles per hour and at twenty miles per hour this increased to 12 G.

d) Whiplash injuries are complex injuries and the symptoms that may be as a result of a whiplash injury include headaches, thoraco-lumbar back pain and parasthaesia and pain of the upper extremities.

e) Sudden acceleration injuries are complex and the relationship between very low speed injuries and resultant symptoms is not clearly distinguished.

f) In a paper in Accident Analysis and Prevention, March 2000, Volume 32(2) Fredriksson et al. maintained that long term whiplash associated disorder sustained in low velocity impacts is the most common disability injury in Sweden.

g) Watanable et al. in Accident Analysis and Prevention, March 2000, Volume 32 also reached similar conclusions using dummy motions and human volunteer motions. They completed their studies of low speed impacts with some seatbelts which had different characteristics. They photographed volunteers' cervical vertebrae motions using x-ray cineradiographic system at a speed of 90 frames per second. Although the tests were conducted under limited conditions, their results are no less emphatic.

h) In a publication by M E Lovell et al. in Injury, International Journal of the Care of the Injured, 2002, Volume 3, the authors state "One particular aspect of the genesis of whiplash associated disorder which can be considered puzzling is the difference in velocity and force of injury which may give similar

clinical outcomes. It has been shown that in 65% of all rear end impacts there is minimal damage to the vehicle but significant neck symptoms may be experienced. The velocity of impact causing symptoms may be less than experienced by participants using fairground bumper cars. Others have shown that there is no relationship between the force of the impact and the severity of WAD, the time taken for symptoms to settle and the difference between frontal impacts as compared with rear impacts. Headrests do not appear to be helpful".

i) Hohl in Journal of Bone and Joint Surgery, 1974; 56-A (8), page 1675 – 1682 examined 146 patients who sustained whiplash associated disorder 5 years after injury. They found 43% were still symptomatic. Vehicle damage (repair costs) were unrelated to chronicity of symptoms.

j) Otremski et al. wrote in Injury, 1989; 20:349-351, that "This type of neck injury occurs most commonly to restrained victims of low-speed accidents". The comment is made in relation to soft tissue injuries of the cervical spine.

k) A paper published by Atherton K, et al. entitled Predictors of Persistent Neck Pain after Whiplash Injury in Journal of Emergency Medicine 2006; 23:195-201 is a large scale prospective study of human and crash related factors predicting persistent neck pain after road traffic accidents. The authors studied 765 patients in four Accident and Emergency Departments in Greater Manchester. Patients were followed up for up to a year following their accident. They found that neck pain was still present in the majority of patients at three months. Significantly, they found that at least 27% of patients still had pain after one year. It was suggested that the use of Delta V is irrelevant in the analysis of real world crashes since it cannot be

calculated with any degree of accuracy and it does not predict injury risk in any event.

l) As such, even in the most recent literature, there would appear to be no direct correlation between the velocity of impact and spinal hyper-extension injury and associated musculoskeletal pain.

m) In a real world traffic accident, the probability of whether or not a patient is injured depends on a number of factors. Certain factors predispose patients to injury. These include:

- Female gender
- History of neck injury
- Poor head restrain geometry/tall occupant (e.g. >80th percentile male)
- Rear impact (vs. other impact vectors)
- Use of seatbelt shoulder harness (i.e. standard three-point restraints)
- Body mass index/head neck index (i.e. decreased risk with increasing mass and neck size i.e. slight build)
- Out of position occupant (e.g. leaning forwards/slumped)
- Non-failure of seat back
- Having the head turned at impact
- Non-awareness of impending impact
- Increasing age (i.e. middle age and beyond)
- Impact by vehicle of greater mass (i.e. >25% greater).
- Crash speed under 10 mph

- Motion analysis of cervical vertebrae during whiplash loading Koji Kaneoka, Koshiro Ono, Satoshi Inami and Koichiro Hayashi Spine April 15, 1999; Vol. 24; Issue 8; pp. 763-770

- Whiplash Produces an S Shaped Curvature of the Neck With Hyperextension at Lower Levels Grauer, Jonathan N. MD; Panjabi, Manohar M. PhD; Cholewicki, Jacek PhD; Nibu, Kimio MD; Dvorak, Jiri MD Spine: November 1, 1997, Vol. 22; Issue 21; pp. 2489–2494

- A study and comparison of the effects of low speed change vehicle collisions on the human body Philip Hoyes and Brian Henderson Accident analysis and Prevention Vol. 51; March 2013; pp 318–324

- Side Impact Causes Multiplanar Cervical Spine Injuries Travis G. Maak, MD, Paul C. Ivancic, PhD, Yasuhiro Tominaga, MD, PhD, and Manohar M. Panjabi, PhD: Journal of Trauma, 2007;63 1296-1307

- Prognostic Value of the Quebec Classification of Whiplash-Associated Disorders Lisa Hartling, Robert Brison, Chris Ardern and William Pickett Spine Vol 26; 2001; pp 36-41

- Soft tissue injuries of the cervical Spine 15 Year Follow-up Gargan MF and Bannister GC Journal of Bone and Joint Surgery;1996;78-B pp 955-7

- Neither the WAD-classification nor the Quebec Task Force follow-up regimen seems to be important for the outcome after a whiplash injury. A prospective study on 186 consecutive patients Jouko Kivioja Æ Irene Jensen Æ Urban Lindgren European Spine Journal 2008 Vol 17; pp 930-935

- Long-Term outcome after Whiplash Injury A 2-Year Follow-Up Considering Feature of Injury Mechanism and Somatic, Radiologic, and Psychosocial Findings Bogdan Radanov, Matthias Sturzenenegger and Giuseppe Di Stefano Medicine; 1995 Vol. 74

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- Prospective Ten-Year Follow-up Study Comparing Patients With Whiplash-Associated Disorders and Asymptomatic Subjects Using Magnetic Resonance Imaging Morio Matsumoto, MD,* Eijiro Okada, MD,* Daisuke Ichihara, MD,* Kazuhiro Chiba, MD,* Yoshiaki Toyama, MD,* Hirokazu Fujiwara, MD,† Suketaka Momoshima, MD,† Yuji Nishiwaki, MD,‡ Takeshi Hashimoto, MD,§ Tomoo Inoue, MD Masahiko Watanabe, MD, and Takeshi Takahata, MD Spine Vol35 Issue 18. pp 1684-1690.

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- Cervical Sprain and Strain Oregon K Hunter 2014 Medscape

- The prognosis of neck injuries resulting from rear end collisions S.H. Norris and I Watt: The Journal of Bone and Joint Surgery; 1983 65B pp 608 – 611
- Prevalence of Chronic Pain After Traumatic Brain injury A systematic Review; Devi E. Nampiaparampil: JAMA 2008 300 6 pp 711 -19
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- TRACsa: Trauma and Injury Recovery. Clinical guidelines for best practice management of acute and chronic whiplash-associated disorders. TRACsa, Adelaide: November 2008.
- Dispute resolution Practice Code Ontario Insurance Commission 1997
- A prospective Study of acceleration-Extension Injuries Following Rear-End Motor Vehicle Collisions Robert J. Brison Lisa Hartling William Pickett: 2000 Journal of Musculoskeletal Pain, Vol. 8 (1/2)

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Declaration and Signature

1 I understand my overriding duty is to the court, both in preparing reports and giving oral evidence. I have complied with and will continue to comply with that duty.

2 I am aware of the requirements of Part 35 and practice direction 35, the protocol for instructing experts to give evidence in civil claims and the practice direction on pre-action conduct

3 I have set out in my report what I understand from those instructing me to be the questions in respect of which my opinion as an expert is required.

4 I have done my best, in preparing this report, to be accurate and complete. I have mentioned all matters that I regard as relevant to the opinions I have expressed. All of the matters on which I have expressed an opinion lie within my field of expertise.

5 I have drawn attention to all matters, of which I am aware, that might adversely affect my opinion.

6 Wherever I have no personal knowledge, I have indicated the source of factual information.

7 I have not included or excluded anything which has been suggested to me by anyone, including those instructing me, without forming my own independent view of the matter.

8 I will notify those instructing me if, for any reason, I subsequently consider that the report requires any correction or qualification.

9 I understand that this report will be the evidence that I will give under oath, subject to any correction or qualification I may make before swearing to its veracity and I may be cross-examined on my report by a cross examiner assisted by an expert.

10 I have not entered into any agreement where the amount of payment of my fee is in any way dependant on the outcome of the case.

Statement of truth:

I confirm I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer.

Signature