

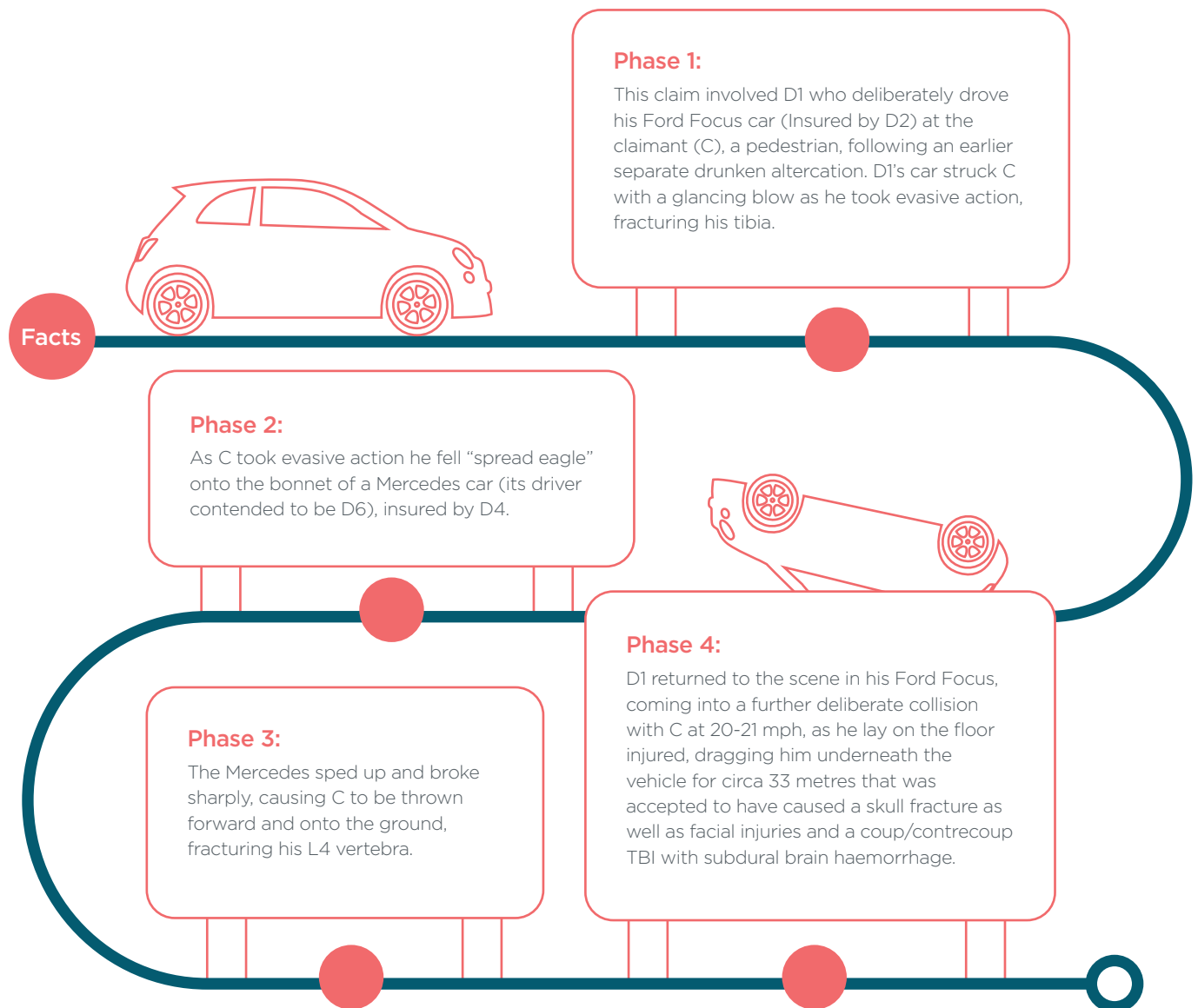
# Brain Injury Special Interest Group article



## Divisibility of Brain Injuries

### The High Court recently handed down its decision in *Farah v MIB & Ors* [2020] EWHC 825 (QB)

The Court determined, amongst other issues, how Diffuse Axonal Injuries (DAIs) occur, the divisibility of separate brain injuries and the chain of causation regarding deliberate acts within a complex set of accident circumstances.



## Divisibility of Brain Injuries

It was accepted by the medical experts that C had suffered a severe coup/contrecoup TBI during phase 4. What was disputed between the parties and experts was whether C sustained a DAI and, if so, during which phase and whether it could be divisible from the remainder of TBI sustained during phase 4?

The expert neurosurgeons for D2 and D4 agreed that a DAI is caused by rapid acceleration/deceleration of the head, causing shearing forces to develop at the grey white matter junction within the brain and between the deep structures of the brain and the more superficial structures. Linear acceleration or deceleration does not, of itself, cause DAI.

The Court had to consider, with the benefit of expert evidence, what happened to C's head and brain as he fell from the car onto the road during phase 3 and what forces were applied to it and when?

D2's expert neurosurgeon considered it was likely that C suffered a degree of DAI as a result of being thrown from the bonnet of the Mercedes and striking the road surface with significant force to the right side of his head and with some degree of angular acceleration given the momentum of the blow caused him to roll onto his left hand side. In his later reports that expert relied on additional scientific evidence (Gennarelli et al 1980) in an attempt to demonstrate that a rotational injury could occur, even in the absence of an impact.

D4's neurosurgeon described the forces operating on C's head as having only "a whiplash effect" as "misleading", and saying that what matters for a DAI to be established is how the brain moves relative to the head rather than how the head moves relative to the body. A DAI is sustained when the brain rotates within the skull.

In assessing the expert evidence the Court considered guidance provided by Green J in *C v Cumbria University NHS Trust* [2014] EWHC 61 who stated then that:



By far and away the most important consideration is the logic of the expert opinion tendered. A Judge should not simply accept an expert opinion; it should be tested both against the other evidence tendered during the course of a trial, and, against its internal consistency.



When considering the medical evidence the High Court applied that guidance and tested it against the CCTV footage, accident reconstruction expert and witness evidence.

The Court accepted on reviewing the CCTV footage that as C fell from the Mercedes in phase 3 his head was falling and rotating in much the same way as the rest of his body rather than "snapping" in different directions. This was one of the reasons for D4

emphatically rejecting the suggestion that the rotational forces operating on C's brain as he fell to the ground were sufficient to cause a DAI.

On considering the expert evidence and the Gennarelli paper the court noted that in the Gennarelli experiment forces of 500-1000G were applied i.e. the equivalent of the head being struck by the windscreen pillar of a car (one of the hardest parts of the car) travelling at 25 mph. The acceleration/deceleration forces in phase 3 of this accident were at nowhere near that level, instead being nearer 4-8 mph.

D4's expert neurosurgeon's evidence was preferred, who opined that DAIs nearly always occur due to a head strike apart from, for example, when a motorcyclist is thrown through the air at speed. 'Biomechanics of a Closed Head Injury' by Anderson and McClean was quoted.

It was also accepted by the Court that a person whose head was snapping around in the manner described by D2's expert and with sufficient force to sustain a DAI, would be highly likely to have suffered significant injuries to his neck. The comprehensive scans and other examinations of C when he was admitted into hospital post-accident did not reveal any injury to his neck.

After reviewing all of the evidence from the scene and experts the Court held that, although C's head was rotated in various planes in the course of falling to the tarmac and striking the road, it was undergoing similar rotations to the rest of his body rather than snapping around. For these reasons the Court found that C did not sustain a DAI during phase 3.

The neck acts as a shock absorber in relation to the forces causing the L4 fracture. A DAI is caused by sudden acceleration or deceleration. If the rotational forces in operation never reach a sufficiently high level to cause a DAI the injury will not be sustained. It is no answer to say that there were insufficiently high levels of rotational force at any point in time but that rotational forces were applied over a period of time and operated cumulatively. If it were, then gymnasts, dancers and divers might be at risk of that type of injury

Regarding C's retained consciousness following phase 3 (when he was communicative but mumbling and his GCS was noted to be at least 9/15) the Court found from the evidence given by witnesses at the scene and the CCTV footage that he did not suffer a significant head injury at that stage. It was instead decided that the entire TBI was a consequence of phase 4. However, even if he had already been unconscious following phase 3, the Court said it would still have decided that a DAI had not occurred during that phase due to its mechanism.

Importantly, although academic, the Court also stated that they would have found that C's phase 4 coup/contrecoup injury was divisible from his DAI but that neither injury was itself divisible.

## Legal Causation

C argued that D1 was liable for any injuries sustained in phase 3 and that the actions of the Mercedes driver did not break the chain of causation between D1 driving at C in phase 1 and him coming off the front of the Mercedes in phase 3.

The Court cited *Chubb Fire Ltd v Vicar of Spalding* [2010] EWCA Civ 981 in determining whether a novus actus interveniens had occurred. The first factor was whether the intervening conduct of the third party was “such as to render the original wrongdoing merely a part of the history of events”. This would include determining the extent to which the conduct was reasonably foreseeable, the degree to which it was unreasonable and whether the act was deliberate.

On the facts the High Court held that D1’s actions in phase 1 were deliberate as he intentionally caused injury. He was using his car as a weapon. He was therefore deserving of less latitude than would

be afforded to a merely negligent driver. It was accepted that the Mercedes driver was aware of C’s presence on the bonnet of his car and probably braked sharply in order to get him off it. He knew, or ought to have known, that C would be thrown off and there was a high risk that he would be injured by that manoeuvre, but his aim was to get him off the front of his car rather than to injure him. The way in which the Mercedes driver sought to do that was not therefore regarded as being a totally unexpected folly.

The events between phase 1 and the end of phase 3 were part of a closely connected sequence which took place over a matter of a few seconds. D1 was held responsible for C’s injuries sustained in phase 3 and held liable for them. The actions of the Mercedes driver did not break the causal link from phase 1 to phase 4.

## Comment

This decision demonstrates how the Court approaches and assesses medical evidence in TBI related claims involving complex medical causation issues, namely alongside the other evidence tendered from lay witnesses and accident reconstruction experts etc. It highlights the need for a forensic approach when gathering evidence and the importance of that available from the scene. The CCTV footage and lay witness evidence was crucial. The medical and other expert evidence should be properly marshalled and medical literature was of key importance.

As in *Hibberd-Little v Carlton* [2018] EWHC 1787 (QB) this case provides another reminder that existence of a DAI is not easily established. There must be clear evidence of rapid acceleration/deceleration within the accident circumstances and significant forces. Unconsciousness alone is not and never has been sufficient evidence of a DAI being sustained.

Although on the facts of *Farah* the High Court did not divide the coup/contrecoup TBI from the DAI it was at least theoretically willing to find those injuries were divisible. This will be of interest to insurers in cases involving complex, phased accident circumstances where divisible brain injuries have occurred.

The decision also illustrates that a Court will not readily find a break in the chain of causation merely on the basis that a subsequent act was deliberate and that an injury was reasonably foreseeable. It will instead determine matters on a fact specific basis. Key factors include whether the intervening act rendered the initial one a mere historic event, the foreseeability of the intervening act and whether it was unreasonable and deliberate.

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