The first time a client brings me a smashed steering wheel with no airbag deployed, the room usually goes quiet. Even after years of handling crash cases, there is something gut level about a safety device that did not do its one job, or worse, turned a survivable collision into a catastrophic one. People call because they hurt, they have questions, and they are staring at a car that looks like a crime scene. They are not wrong. With airbag and defect claims, the evidence must be treated like a forensic case from the first day.

This work sits at the intersection of product engineering, trauma medicine, and insurance law. The stakes are not abstract. A millisecond of delay in deployment can mean a shattered face, a brain injury, a broken neck. A ruptured inflator can send metal fragments through a cabin. A faulty sensor can read an occupied seat as empty and withhold protection from a passenger who needed it most. The job of a car accident lawyer is to pull those technical threads while never losing sight of the person who has to live with the result.

How Airbags Should Work, and How They Fail

Airbags are simple to describe and complex to design. When certain crash thresholds are met, sensors feed data to the airbag control module, sometimes called the sensing and diagnostic module. In a fraction of a second, the module makes a deployment decision. If yes, an igniter triggers a chemical propellant that rapidly creates gas, inflating the bag to cushion occupants. Modern vehicles may have front, side, curtain, and knee airbags, and systems that adjust deployment based on seat position and occupant size.

Common failure modes show up in patterns:

- No deployment when crash forces met the thresholds, leaving the occupant to strike hard surfaces at speed.
- Late or partial deployment, which can be as harmful as no deployment at all.
- Inadvertent deployment in low severity impacts, leading to injuries that should not have occurred.
- Inflator ruptures, launching metal fragments into the cabin. The Takata inflator crisis brought this defect to the forefront, with more than fifty million inflators recalled in the United States and at least two dozen deaths tied to shrapnel injuries.
- Sensor or occupant classification errors that suppress or mis-time deployment, sometimes because of seat weight sensors, seat position sensors, or wiring harness faults.

Those are headlines. In real cases, defects ride alongside messy facts. A client might not have been belted. A seat might have been slid all the way forward. Two impacts might have happened in quick succession, confusing the algorithm. This is why a careful airbag case never rests on a single theory until the data supports it.

The Legal Map: Negligence, Strict Liability, and Crashworthiness

The law gives several routes to hold a manufacturer accountable. In most states, a product that is unreasonably dangerous because of its design, its manufacture, or its lack of adequate warnings can trigger strict liability. Negligence is a parallel theory that focuses on what the manufacturer knew, what it should have known, and the care it took in design, testing, and post-sale warnings.

Airbag cases often live under the crashworthiness doctrine, sometimes called the enhanced injury rule. The idea is straightforward. Even if another driver caused the collision, a defective vehicle component that aggravated the injuries can still be liable for the additional harm. If a frontal impact would have produced a broken arm, but a non-deploying airbag left the driver with a traumatic brain injury, the manufacturer can be responsible for that

delta. Sorting out which injuries belong to which cause takes good medicine, strong experts, and a clear narrative supported by evidence.

The First 30 Days: Triage, Preservation, and Who Holds the Keys

When someone calls from the hospital while the tow yard threatens to crush their car, urgency is not drama. It is case preservation. Most evidence in an airbag claim lives in the vehicle, in the control module, and on the surfaces that show contact, tearing, soot, or pattern injuries. Once those disappear, arguments turn hypothetical and juries tune out.

A seasoned car accident lawyer moves quickly. We send preservation letters to the tow yard, the insurer, and anyone else with a key, instructing them not to move, repair, or inspect the vehicle. We arrange secure storage and a non-destructive inspection protocol. If the car is drivable or slated for a recall repair, we ask the dealership to hold off, document the vehicle's condition, and photograph everything before any service. If the crash was serious, we coordinate an event data recorder download through an authorized technician and lock down the chain of custody with detailed logs.

If you still have the car after an airbag incident, here is the short checklist I give families:

- Do not authorize repairs or let anyone remove parts, including the airbag module or inflator.
- Photograph the car from all angles, including close-ups of the steering wheel, dash, seats, seat belts, and any airbag fabric or shrapnel.
- Save all loose parts, trim, and any metal fragments you find in the cabin in clean, labeled bags.
- Get the tow yard and your insurer's storage locations and policies in writing, and notify your lawyer the same day.
- Keep every medical record, discharge summary, and bill, no matter how small, in one folder. Timing and symptoms matter.

These steps seem simple. They often decide whether we can prove the defect at all.

Reading the Car's Memory: Data Modules, Codes, and Hidden Clues

Most late model vehicles store crash data. The event data recorder and the airbag module are not identical, but they often talk to each other. Depending on the make and year, you can extract pre-crash speed, brake application, throttle position, seat belt usage, airbag deployment commands, and sometimes the precise airbag fault codes that existed at the moment of impact. The details change by manufacturer. Some modules record only a single event and overwrite on a second crash. Some record multiple events. Some require a battery to hold data, others do not.

In practice, we work with a forensic download technician who uses a compliant tool to read the module. The Bosch Crash Data Retrieval system is common, but not universal. For brands outside Bosch support, we may need a dealer-level scan tool or manufacturer assistance. We document power sources, connectors, and every step of the process to avoid any accusation that the download altered the data.

Alongside the digital trail, the car's hardware tells a story. Residue on the steering wheel rim can show head contact if the airbag did not cushion impact. A sheared clock spring in the steering column may explain why a firing signal never reached the driver airbag. Burn patterns on the fabric can suggest a weak fill. Missing tethers or torn seams can show an overpressure event. An inflator that split along a seam is a red flag that demands metallurgical work.

When Recalls and Reality Intersect

When clients bring me recall letters from a glove compartment, it changes the posture of the case. Some recalls involve software updates, some address wiring chafing, some are full part replacements. A recall does not automatically win a case, but it can be compelling evidence that the manufacturer knew of a defect pattern and identified a fix. The flip side also matters. If a recall repair was performed before the crash and the airbag still failed, we now have a stronger argument that the remedy was inadequate.

The Takata inflator crisis is the most public example. The core problem involved ammonium nitrate propellant that became unstable when exposed to heat and humidity over time. Instead of inflating the bag in a controlled way, some inflators ruptured and sent metal fragments outward. Dozens of manufacturers, spanning model years, participated in waves of recalls. If a case involves a Takata inflator, we verify the exact part number on the component itself, not just the VIN recall status. Salvage vehicles, aftermarket steering wheels, and prior repairs can swap parts and make the paper trail unreliable.

Choosing and Managing Experts

Airbag defect litigation rises or falls on expert credibility. I typically assemble a small, focused team:

- A crash reconstruction engineer to model impact forces, principle direction of force, change in velocity, and timing.
- A biomechanical engineer or physician to explain injury mechanisms, the kinematics of the occupant, and whether the injuries match a non-deploy versus a deployed airbag.
- A materials engineer or metallurgist for inflator and housing failures, including fractography and propellant condition if disassembly is warranted.
- An automotive systems expert with airbag algorithm and sensor experience to interpret module data and failure codes.

We begin with non-destructive inspections. High resolution photography, micro CT scans, and 3D scanning can capture internal features without altering the part. If destructive testing is required, we notice all parties and agree on a protocol that protects evidence integrity. A single unauthorized drill hole can spark a spoliation fight and close a door that should have stayed open.

The Anatomy of a Defect: Design, Manufacturing, and Warnings

Different defects require different proof. Lawyers use shorthand for categories, but what we plead and how we prove it depends on the facts at hand.

- Design defect: A choice made at the drawing board created an unreasonable risk. Examples include a propellant formulation prone to moisture degradation, an algorithm with thresholds that ignore common real world crashes, or a placement that points a side airbag where a child’s head might be in a foreseeable posture.
- Manufacturing defect: The design was acceptable, but something went wrong on a particular batch or day. Missing crimps on inflator housings, contaminated propellant lots, or incorrectly torqued fasteners show up here.
- Failure to warn or instruct: Adequate warnings about child seat placement, out-of-position risk, or recall urgency were lacking, unclear, or buried. In modern cabins, unclear airbag on-off indicators for passenger seats have also drawn scrutiny.

- Post-sale duty: When a manufacturer learns of patterns of failure, its duty to act can include updated warnings, dealer guidance, or recalls. The timeliness and sufficiency of that response is part of the case record.

Those categories overlap. A vehicle may have both a weak algorithm and a brittle inflator. The complaint can plead multiple theories and, after discovery, focus on the one that the evidence proves cleanly.

Sorting Fault When There Was Another Driver

Most airbag defect cases begin with a crash caused by someone else. The instinct is to choose a single villain. Juries do not think that way, and neither should we. The other driver's insurer may fight hard to cast the defect claim as a distraction. The manufacturer may lean on the initial negligence to argue that any severe injury was inevitable. The law in many states allows juries to assign percentages of fault across multiple defendants. That dual front changes strategy.

We work in phases. Against the at fault driver, we prove liability and the baseline of damages. In parallel, we show how the product defect changed the outcome. Sometimes the medical evidence is clean, for example, shrapnel lacerations from a ruptured inflator that have nothing to do with the collision vector. Sometimes it is nuanced, for example, facial fractures that could have been caused by a steering wheel strike but that a properly timed airbag should have mitigated. Comparative fault rules also vary. Some jurisdictions bar recovery if the plaintiff was more than 50 percent at fault. Others reduce damages proportionally. Knowing that terrain early shapes what we collect and how we frame it.

The Human Factors Layer: Occupants Are Not Crash Test Dummies

Advanced airbags are designed to adapt to real people, not just test mannequins. That promise adds variables to a case. Occupant classification systems rely on seat weight sensors, seat track position sensors, and sometimes seat belt latch status. In practice, people lean forward to pick up a dropped phone, sit on a leg, or brace for a hit. Children shift in boosters. A petite adult might ride on the front edge of a seat. A large coat or a laptop bag can confuse weight sensors. None of this excuses a defect, but it informs it. If the system suppressed a passenger airbag because the occupant classification misread a 120 pound adult as a child, the facts point toward a sensor or algorithm problem.

When I interview clients, I ask for small details. How far forward was the seat? Did the belt lock? Was there a warning light on the dash before the crash? Had the airbag light flickered in the weeks before? These tiny facts often line up later with module codes or dealership service notes.

Working With Dealerships, Insurers, and the Supply Chain

The dealership is not the enemy, but it is not a neutral witness either. Service advisors are busy, and their systems are designed to fix cars, not preserve evidence. If a vehicle rolls in after a crash with an illuminated airbag light, a technician may scan codes, clear them, and move on. That is normal shop workflow. In a defect case, it is disastrous. We send written hold notices, ask for copies of work orders, document any code readouts, and, if needed, get a court order before destructive work.

Insurers bring other issues. A property carrier wants to total and dispose of the vehicle quickly. That is their job. Meanwhile, the injured person's medical payments carrier and health insurer are tracking bills and planning subrogation. A car accident lawyer coordinates these moving parts to keep the physical evidence available, protect coverage for medical care, and avoid lien surprises at settlement.

The supply chain also matters. The badge on the steering wheel is not the inflator maker. Component suppliers, sometimes tier one or tier two, often designed and built the part at the heart of the failure. Identifying the right defendants early helps with jurisdiction, discovery, and settlement leverage.

Evidence, Testing, and the Long Road to Proof

A strong defect case marries the macro and the micro. At the macro level, we look for pattern evidence. Has the National Highway Traffic Safety Administration logged similar complaints? Are there service bulletins? What about prior lawsuits or confidential settlements hinting at a fix that came too late? At the micro level, we study this inflator, this module, this harness, this bag.

Testing should answer precise questions. If the issue is a non-deployment claim, we want to know whether the crash severity met the thresholds and whether the system received and acted on the right signals at the right time. That may involve sled testing with exemplar modules, algorithm analysis under simulated inputs, and careful time alignment between measured delta V and any record of firing commands in the module. If the issue is an inflator rupture, materials science leads. High magnification of fracture surfaces can distinguish ductile tearing from brittle failure. Chemical analysis can assess propellant condition. Environmental exposure records, even simple things like where the car lived and whether it was garaged, become relevant.

Opposing counsel will argue alternative causes. They might say the driver was unbelted, the seat was too close, or a second collision thirty seconds later is the one the module recorded. Good testing anticipates those stories. It shows, for example, that the threshold for deployment would have been met even without seat belt use, or that the module should have captured the first impact and did not, which points to a loss of power or module fault.

Deadlines, Venues, and Procedural Landmines

Every case lives under a statute of limitations. In some states, you have two years, in others three or four, and special rules may apply when a governmental entity is involved. Evidence sometimes moves on a faster clock. Tow yards are not museums. We calendar everything and act early.

Where to file matters too. Auto manufacturers prefer federal court. Diversity jurisdiction, removal strategies, and battles over personal jurisdiction are common. Filing against a local dealership or component supplier can anchor a case in state court when strategy calls for it, but only if there is a good faith claim. Courts penalize gamesmanship. Protective orders, inspection protocols, and confidentiality agreements shape discovery. Product cases often involve design documents that manufacturers guard closely. We push for what is necessary and accept tailored protections that let work proceed without a year lost to motion practice.

Valuation: What Makes These Cases Settle, and When They Do Not

Defect cases usually do not settle like simple rear end collisions. Liability is contested, damages are high, and defendants are risk sensitive about publicity. Settlement values turn on three elements: the strength of proof on defect and causation, the plaintiff’s credibility and damages story, and the fear factor, meaning whether a jury will see the case as a preventable corporate failure.

Numbers vary widely. A facial fracture with scarring from a late deployment might settle in the low six figures if liability is clear and medicals are straightforward. A shrapnel injury with permanent nerve damage or a wrongful death driven by a ruptured inflator can move into seven or eight figures. Even then, confidentiality often keeps the specifics out of the news. On the other hand, a no deployment claim with borderline crash severity and

inconsistent medical evidence might not settle at all until after expert reports, when each side finally sees the other's cards.

Medical Proof: Turning Pain Into Evidence

Doctors treat. Lawyers translate that treatment into proof. With airbag cases, mechanism of injury is key. A forehead laceration with tattooing from embedded propellant residue points one way. Steering wheel imprint bruising points another. Eye injuries can indicate close proximity to a deploying bag. Chest injuries can map to seat belt performance and help explain whether the bag would have made a difference. We work closely with treating physicians and, when needed, independent experts to explain not just that an injury happened, but how the defect magnified it.

Brain injuries deserve special care. Clients sometimes walk out of an ER with a "mild" traumatic brain injury diagnosis and a normal CT, then struggle for months with headaches, memory gaps, and mood swings. Proper neuropsychological testing, imaging when appropriate, and a clear timeline help judges and juries understand invisible injuries. Airbag soot in nasal passages, facial abrasions in a circle pattern, and fractured nasal bones can support a head strike narrative that dovetails with cognitive complaints.

When the Defense Says It Was Your Fault

Defendants raise predictable arguments. They point to unbelted occupants, aftermarket steering wheels, salvage titles, and prior recall notices. Some have merit, some do not.

Seat belts help, but not every unbelted driver loses a defect claim. Airbag algorithms must account for a range of occupant positions and belt uses. An unbelted driver may face comparative fault on the overall injuries, yet still show that the defect transformed a survivable crash into a catastrophic one. Aftermarket parts complicate things. If someone swapped in a non OEM steering wheel with a counterfeit airbag, the path narrows quickly. We investigate provenance, installation records, and whether the remaining system elements still failed. Salvage title vehicles are not automatic losses. The law still expects reasonably safe design, and many recalls have covered salvaged cars as well. Prior recall notices raise issues of knowledge and mitigation. If a client ignored a clear, urgent recall for years, a jury may reduce damages. If notices never arrived or were ambiguous, or if the car was awaiting a no parts available repair that dragged on, the equities change.

Communication, Care, and the Client's Life

Airbag litigation takes time. Clients live with the case while they work, parent, and heal. The best lawyers run a parallel track for the human side. We coordinate with medical providers to keep care moving. We manage insurance liens so a surprise does not eat a settlement. We explain what is happening, what is next, and why a three month wait for a single inspection is sometimes the smartest play. The client's job is recovery, work, family. The lawyer's job is to carry the legal weight with clarity and urgency.

What Success Looks Like

When these cases resolve well, it rarely feels like victory fireworks. It is quieter. A client gets the resources to pay for reconstructive surgery, therapy, or adaptive equipment. A parent stops worrying about the next round of medical bills. Sometimes, a manufacturer changes a part, a procedure, or a warning. One client asked me to mail back the airbag emblem that had been recovered from her car. She wanted to make a key fob out of it and, in her words, "take the fear out of it." I understood. We boxed it carefully, along with a letter explaining what the case

had proven. Objects carry stories. Our work is to tell them View website well, and to make sure people, not parts, are the center.

If you are staring at a car that failed you, or grieving a person taken by a defect that never should have made it to market, reach out early. A car accident lawyer who knows airbag and defect work can secure the evidence, build the right expert team, and push the case along the path that gives you answers and accountability. Not every crash is preventable. Not every injury is inevitable. The difference between the two is where this practice lives.