A 69-year-old female patient underwent a standard laparoscopic Nissen fundoplication for repair of a hiatal hernia and correction of reflux. A Harmonic scalpel was used as the only energy source intraoperatively. The operation was uneventful until the middle of the procedure when a significant amount of blood was noted in the left upper quadrant. After aspiration and careful inspection, a 5-cm irregular vertical laceration was found on the posterior and lateral aspect of the spleen, far away from the operative field and any previous instrumentation. Control of bleeding from the spleen was unsuccessful, so a laparoscopic splenectomy was performed, and the procedure was finished without further incident. Histologic examination revealed a normal spleen with no pathologic alterations accounting for the laceration. After comprehensive evaluation of this case to assess a potential cause of the complication, the question arose as to whether the energy produced by the Harmonic scalpel could have caused this splenic laceration.