



Intraabdominal Cardiac Pacemaker Meets Abdominal Surgery: Navigating the Risks

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Abstract

Abdominal implantation of cardiac pacemakers in adults is uncommon and typically reserved for patients with contraindications to standard pectoral placement. These include recurrent pocket infections, mechanical tricuspid valves, congenital heart disease, and anatomical constraints such as small body size or thin habitus.^{1,2} Abdominal placement allows relocation of the device to an uninfected or more suitable site but introduces additional challenges during intra-abdominal procedures.³ This report presents a case of successful pancreaticoduodenectomy (Whipple procedure) in a patient with an abdominal pacemaker, emphasizing multidisciplinary planning and intraoperative precautions.

Case Description

A 78-year-old male with pancreatic ductal adenocarcinoma and a history of recurrent pectoral site infections leading to four previous pacemaker placements underwent a Whipple procedure. The current device, a non-dependent Medtronic pacemaker, was located in the left upper abdomen and has been in place since 2017 for sinus node dysfunction. Preoperative evaluation confirmed stable device function with no need for reprogramming. A comprehensive plan was developed with anesthesia, cardiology, and surgical teams to ensure safety during the intra-abdominal procedure.

Management

Key perioperative strategies included:

- Placement of the TAPSCOPE device post-induction for potential pacing and esophageal ECG monitoring.⁴
- Avoidance of monopolar electrocautery to reduce electromagnetic interference.
- No magnet placement or preoperative reprogramming, given the patient's non-dependence.
- Avoidance of the pacemaker pocket during surgery.
- Use of bilateral quadratus lumborum (QL) blocks for postoperative analgesia.

The procedure proceeded uneventfully with no intraoperative or postoperative complications. The TAPSCOPE provided real-time monitoring and standby pacing capacity, contributing to perioperative safety.



Figure 1: X-Ray of patient's abdomen showing abdominal pacemaker.

Conclusions

This case underscores the feasibility of major abdominal surgery in patients with abdominal pacemakers, provided there is thorough multidisciplinary coordination. Key elements of safe management include individualized perioperative planning, intraoperative avoidance of electromagnetic interference, and use of adjunct technologies like the TAPSCOPE. While abdominal pacemakers are rare, their use is clinically justified in selected patients with complex cardiac or anatomical profiles. Awareness of their unique risks, such as device manipulation, interference with surgical fields, or pacing disruption, is essential. With appropriate planning and monitoring, favorable outcomes are achievable in high-risk patients undergoing complex intra-abdominal procedures.

References

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