



AN EXPERIENCE OF FLAP COVER OF EXPOSED CARDIAC PACEMAKER IN A TERTIARY CARE HOSPITAL

Pritha Rakshit

Mch Plastic Surgery, Consultant, Department of Plastic Surgery, Apollo Multispeciality Hospitals Limited, Kolkata, India.

ABSTRACT **Background:** Skin dehiscence and exposure of permanent pacemakers is a very serious and relatively rare complication of permanent pacemakers. Although the general consensus is explantation of the exposed device, it has also been shown in several studies that non infected devices may also be retained and salvaged with tissue coverage. A review of literature suggests various procedures for salvage. **Study design:** Prospective, interventional, institution based, conducted at Apollo Multispeciality Hospitals, Kolkata, India. **Method:** Our study includes 3 patients encountered over a period of 6 months with exposed permanent cardiac pacemaker devices. All 3 patients were treated with single staged wound coverage comprising of wound debridement, capsulectomy, lavage with Povidone iodine, flap cover/primary closure, and suturing of skin edges with de epithelialization of one of the margins. The entire procedure was done under local anesthesia. All the closures settled well and no wound dehiscence was seen in 3 months follow up period. **Conclusion:** Non infected exposed cardiac devices may be managed by local flap coverage without changing pocket and this procedure is subject to minimal risk.

KEYWORDS : exposed cardiac pacemaker, capsulectomy, local flap cover, de epithelialization.

INTRODUCTION

The frequency of exposure of cardiac pacemakers is relatively uncommon. In the presence of clinically proven infection, explantation of the device followed by implantation of a new device at a different site is the procedure of choice.[1,7] but such procedures may result in serious complications and may require general anesthesia.[2] Several studies have advocated a more conservative approach which entails wound debridement, capsulectomy, irrigation of the pocket with antibiotic solution, and various techniques of wound closure ranging from primary closure, local flaps and loco regional flaps, without relocating the device in a new pocket.[3,4,5,6]

The present study was carried out to establish a relatively easy, single staged technique of coverage of exposed cardiac pacemakers with debridement, capsulectomy, antibiotic lavage of the pocket, rotation flap cover with excision of Burow's triangle[5,6], and suturing the flap edges with de epithelialization[5] of one of the skin margins under local anesthesia.

METHODOLOGY:

This prospective, interventional, institutional based study was conducted at the Department of Plastic Surgery, Apollo Multispeciality Hospitals, Kolkata, India. Study period was 6 months, (October 2020 to March 2021). Patients in the age group of 50-85 years presenting with exposed cardiac pacemakers were included in the study. Informed high risk consents were taken explaining the complications related to flaps and pacemaker devices. Wound swabs were taken from all 3 patients for culture and sensitivity and all the wounds were found to be sterile. Chest X Rays were done in all 3 patients preoperatively to delineate the position of the devices and the leads. All procedures were done under local anesthesia with 2% Lignocaine injection with Adrenaline (1:1 dilution with normal saline). A single dose of Injection Co-Amoxiclav 1.2 gm was administered in all patients before making the incision. Pacemaker devices were put to asynchronous VOO mode and only Bipolar Cautey was used for hemostasis.

After antiseptic dressing, draping and local anesthesia, the thinned wound margins were excised. Planning of closure/flap was done. Flaps were raised from the underlying capsule. Capsulectomy was done with minimal handling of the leads. Lavage of device pocket with 10% Povidone iodine solution was done. Absolute hemostasis was attained with bipolar cautery. Flap margins were de epithelialized so as to bury it beneath the other margin while closure, thereby making the closure more secure. Closure was done in 2 layers with 3-0 Vicryl Rapide subdermal sutures and 4-0 Nylon. No drains were placed in any of the patients.

Patients were monitored in Cardiac ICU with continuous ECG monitoring. Wound inspection was done after 48 hours and all the wounds were clean and dry without any congestion or marginal necrosis. Pacemaker modes were converted to the previous modes before discharge. Patients were discharged on the 3rd post operative day. They were scheduled for routine follow up on 10th post operative

day (POD) and sutures were removed. Further follow ups were done at 1 month and 3 months. All the wounds settled well without any flap related or pacemaker related complications.

Table – 1, General Details

SERIAL NO	AGE	GENDER	DURATION OF EXPOSURE	RECONSTRUCTIVE CLOSURE	COMPLICATIONS
1	82	MALE	3 MONTHS	ROTATION FLAP AFTER DEEPIHELIALIZATION OF MARGIN	NIL
2	77	FEMALE	2 WEEKS	PRIMARY CLOSURE AFTER DEEPIHELIALIZATION	NIL
3	65	MALE	3 WEEKS	LIMBERG FLAP AFTER DEEPIHELIALIZATION	NIL



Figure 1
Figure 1a- exposed cardiac pacemaker, 1b- close view of the ulcer, 1c- chest X Ray showing position of device



Figure 2
Figure 2a- planning of flap, 2b- capsule dissection, 2c- pulse generator device after capsulectomy



Figure 3a- de epithelialization of flap margin, 3b- wound closure, 3c- 10th POD, 3d- at 1 month

CONCLUSION

Explantation and relocation of exposed pacemakers to new pocket[1,7] was widely accepted in most cases of exposed cardiac devices previously. This study demonstrates that such cases can be dealt with more conservatively by keeping the device in the same pocket.[4,5] A thorough capsulectomy, meticulous hemostasis, well planned closure, de epithelialization of one of the margins help in performing the procedure under local anesthesia without much risk to the patient.

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