ORIGINAL ARTICLE

Why Not Use Monopolar Diathermy for Skin Incision

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ABSTRACT

Aim: To study the efficacy and safety of monopolar surgical diathermy in making skin incision for various surgical procedures.
Setting: Avicenna medical college and hospital, Lahore
Design: Retrospective, observational study of one hundred consecutive patients.
Methods: One hundred consecutive patients in which diathermy was used to make skin incision were studied. Laparoscopic surgery patients and patients who underwent wound debridement were not included in the study. Study period was September and October of 2018. Skin incision was made using diathermy in cutting mode at very low power setting. Patients were studied for skin burn, postoperative pain, wound healing and scar appearance.
Results: Diathermy incision was used in various surgical procedures which included; Abdominal hernias, Appendecectomies, Thyroidectomies, Breast surgery, Skin and subcutaneous lumps, Perineal surgery and abscesses. No incidence of skin burn was noted. Post operative analgesia requirement was reduced. No patient had delayed wound healing but four patients of abdominal wall hernias developed hypertrophic scar.
Conclusion: We observed that diathermy is a safe and effective tool for skin incision and it can replace knife as a primary tool for making skin incisions.
Keywords: Surgical diathermy, Skin incision, Scar

INTRODUCTION

Scalpel is used to make skin incisions in almost all surgeries [1]. Immediate problem encountered after making skin incision with knife is bleeding from cut edges of skin and also from subcutaneous tissues[2]. It may take considerable time and effort to perform haemostasis before proceeding to next step of operation. Bleeding also causes staining of operative field and makes dissection in proper planes difficult. To overcome these problems diathermy is being used increasingly nowadays to make skin incision and initial dissection[3].

Obviously diathermy incision saves time and keeps operative field clean but there is fear of skin burn, increased postoperative pain, delayed wound healing and weak / ugly scars[4, 5].

We have been using diathermy to make skin incisions for some time now and carried out this study in our department to find out risks and benefits of diathermy use in skin incisions.

METHODS

One hundred consecutive patients who were operated for various surgical diseases in general surgical unit 1 of Avicenna medical college and hospital Lahore were studied. Study period was September and October of 2018. Diathermy was not used for skin incision in laparoscopic surgery. Wound debridements were excluded from our study. High frequency monopolar surgical diathermy was used in cutting mode at low current setting of 1 – 2. After skin incision further deep dissection was done in coagulation mode. Patients were studied for skin burn, postoperative pain and wound healing.

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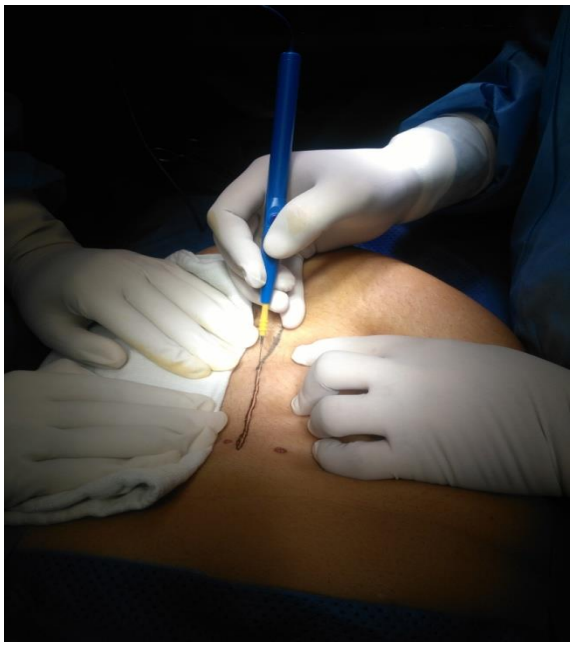

RESULTS

Diathermy incision was used various general surgical procedures which included; Open abdominal wall hernias, open appendecectomies, skin and subcutaneous lumps excision, breast surgery, thyroidectomies and perineal surgeries .(Table 1)

No incidence of skin burn around incision site was observed. Post operatively all patients received Diclofenac sodium regularly and Nalbufin as required. It was observed that postoperative analgesic requirement decreased in these patients. Skin sutures or clips were removed at standard time which was set at 4-5 days for head & neck, 7-10 days for upper limb, chest & abdomen and 10-14 days

for back & lower limb. Patients were followed in outpatient clinic and no incidence of wound disruption or keloid was observed. However four patients developed hypertrophic scars. These four patients were all operated for abdominal wall hernias. (Table 2).

Table 1

Type of operation	**n**
Skin and subcutaneous lump excision	27
Appendicectomy (open)	12
Inguinal hernia repair (open)	16
Epigastric & paraumbilical hernia repair (open)	11
Perineal surgery	21
Breast surgery	09
Thyroidectomy	04

Table 2: Complications

Skin burn	0
Postoperative pain	Reduced
Wound disruption	0
Hypertrophic scar	4
Keloid	0

DISCUSSION

In our study we found that diathermy is safe and effective in making skin incision and cosmetic appearance of resultant scar is equivalent to knife incision.

We found that diathermy incision has many advantages over traditional scalpel incision. First of all it saves a lot of time which is lost to achieve haemostasis after knife incision [6, 7, 8].

There is definitely a cleaner operative field and planes of dissection are clearly identified and developed. There was no incidence of skin burn in our study. In another study skin necrosis due to diathermy incision was studied by sending skin edges of incision for histopathological analysis and it was found that there was no skin necrosis [9]. It is important to emphasize this point as skin burn and poor wound healing are considered to be major deterrent for wide spread use of this technique in making skin incision. All our patients had removal of sutures after approximately same standard time period as is recommended for incision by knife.

Postoperative analgesia requirements are actually reduced in diathermy incision patients as compared to scalpel incision patients. This phenomenon was observed in other studies and mechanism of reduced pain in diathermy incision patients is generally attributed to destruction of sensory pain receptors and nerve endings by electrical ablation at the time of incision [10, 11].

Another important benefit of diathermy over scalpel is its safety regarding sharp injuries to the surgical team which has a potential of causing serious communicable diseases like Hepatitis but diathermy may cause burn injury to the surgical team as well as patient if proper preventive measures are not observed [13].

Finally it was observed that wound complication rate i.e. wound opening, wound infection, keloid and hypertrophic scar was also equivalent to knife incision [12]. Coagulation diathermy causes tissue necrosis which may lead to increases wound problems but cutting diathermy causes tissue evaporation which results in less wound complications [13, 14, 15].

CONCLUSION

We observed in our study that diathermy is very effective and safe tool for making skin incisions and it can replace knife for this purpose.

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