Experience with day-care surgery in a Private Surgical Clinic in Nakuru, Kenya

N. MASIIRA – MUKASA M Med (Surgery)
Consultant Surgeon,
Rift Valley Surgical Consultation Clinic,
P.O. Box 10178, Nakuru, Kenya.

Key words: Day-care surgery, private consultation, surgical, clinic.

A retrospective study of 251 operations carried out in a private surgical consultation clinic in Nakuru, Kenya was undertaken. A review was carried out of the clinical notes of patients who had surgery at this clinic between Jan. 1993 and June 1998 and who were regularly followed up to their formal discharge from the clinic. The records were analyzed for age, sex, type of operation, the anaesthetic used, the post-operative analgesics prescribed and post-operative complications.

There were 75 (30%) excisions or biopsies of masses or malignancies, 50 (20%) surgical toilets and suture of wounds, 39 (15.5%) incisions and drainage of abscesses, 24 (9.5%) reductions of fractures, 15 (6%) anal operations and 14 (5.5%) inguinal hernia repairs. Postoperative wound sepsis developed in 82 (32.65) of the patients. The study confirmed that In a suitably located, well-organized and adequately equipped surgical consultation clinic, a wide range of carefully selected surgical operations can be safely carried out mainly under local anaesthesia but occasionally with added sedation. Adequate anaesthesia can be achieved in over 70% of the operations and post-operative pain can be effectively controlled using NSAIDs with or without narcotic analgesics. Systemic toxicity though uncommon, is the most serious anaethetic complication. The main post-operative complication is wound sepsis.

Introduction

In Kenya, as in so many other developing countries, most surgical operations are normally carried out in hospitals either as out-patients under local anaesthesia in the casualties and out-patient departments or as in-patients under general anaesthesia[1,2]. However, mainly due to economic factors, there has been a gradual increase in the number of patients seeking surgical treatment in private surgical consultation clinics. The use of local anaesthesia for pain control in a wide range of surgical operations, as emphasized in several recent studies[1,2,3,5,6,7,8], together with major advances made in effective management of post-operative pain, particularly the development of powerful non-sedating analgesics[3,4,12], are gradually enabling a number of operations which hitherto have been performed in hospitals under general anaesthesia, to safely be carried out in Private surgical clinics

under local anaesthesia[11]. The aim of this study, was to review the various surgical operations carried out in a private surgical clinic mainly under local anaesthesia and to assess any surgical or anaesthetic complications resulting from these operations.

Material and methods

This study population included all patients who had surgery at the Rift Valley Surgical Consultation Clinic between January 1993 and June1998 and who had been properly followed-up until they were formally discharged from the clinic. Rift Valley surgical consultation clinic is located in Nakuru town next to the main taxi park, which made communication to and from the clinic relatively easy for the poor patients.

Facilities available at the clinic included a clearly demarcated and isolated operation area, a recovery (observation) area, a scrubbing-bay, a small multi-purpose operating couch, a large sterilizer, a portable operating light, an instrument trolley and various surgical instruments. The clinic was equipped with standard emergency resuscitation equipments and drugs. All linen and surgical gauzes were sterilized in drums at the nearby Nakuru Maternity and Nursing home on regular basis.

All surgical patients were carefully evaluated and properly counseled so as to determine which cases could safely undergo surgery at this clinic and those that required referral to hospital for treatment. All children under 16 years of age requiring intermediate surgical operations were excluded as well. The majority of surgical operations were carried out using local anaesthesia with added sedation in some cases. Adequate sedation was achieved by using various doses of pethidine alone or pethidine combined with Valium. The local anaesthetic most commonly used was 0.5% Lignocaine with or without 1:200,000 Adrenaline.

For inguinal, scrotal and testicular operations, the technique of regional nerve block combined with local infiltration along the surgical line was used in most cases. Regional nerve block was followed by sub-cuteneous infiltration of the local anesthetic along the line of the skin incision (inguinal/scrotal) and infiltration around the deep ring before the isolation and excision of the hernia sac. For purely scrotal or testicular operations, extra-inguinal blockage of the Ilio-hypogastric and Ilio-inguinal nerves was not always necessary. For anal operations, local anaesthetic jelly was initially applied along the anal canal. Then with one finger in the anal canal directing the needle, the local anaesthetic was infiltrated first in the skin around the anal canal, and then gradually deeper into the external and internal sphincters.

The administration of post-operative analgesics was governed by the severity of post-operative pain experienced by the patient as follows: -

a) Patients with mild post-operative pain or discomfort were normally given mild to moderate oral NSAIDs such as Paracetamol or Brufen.

b) Patients who experienced moderate pain after surgery were usually managed on one of following analgesic regimes: -

- Strong oral NSAID such as voltaren or cataflam.
- Strong parenteral NSAIDs such as intra-muscular Voltaren or Feldene.
- A combination of strong parenteral NSAIDs and parenteral narcotic analgesic (i.e. i-m Voltaren and i-m Pethidine).

c) Those patients who developed severe pain after surgery were normally given a full dose of parenteral narcotic analgesic such as Pethidine or Tramadol.

Results

During the period of study, a total of 437 surgical procedures were performed but only 251 cases were properly documented and regularly followed up until formally discharged from the clinic. The patients' ages ranged between 1 month and 90 years with a mean age of 30.8 years (Table 1). The different types of surgical procedures performed are shown in tables 2 – 8. Lipomas, sebaceous cysts and breast lumps were the commonest masses excised. Other common conditions for which surgery was performed included peri-anal and breast abscesses, chronic anal fissures and haemorrhoids and urethral strictures. There were 14 inguinal operations of which 6 were herniorrhaphies. Table 9 shows the anaesthetic techniques used in each group. The rate of post-operative wound infection in each group is shown in table 10. There were 82 cases of wound sepsis, an infection rate of 32.6%. Table 11 shows the other post-operative complications that included haematoma formation.

Table1 Age distribution in patients who underwent various surgical procedures.

Age in years	No. of cases	Percentage
0-10	27	10.7
11-20	39	15.5
21-30	62	24.7
31-40	53	21.1
41-50	35	14.0
51-60	17	6.8
61-70	9	3.6
71-80	6	2.4
81-90	3	1.2
TOTAL	251	100.0

TABLE 2 Types of masses or malignancies excised or done biopsy

Masses/Malignancies	No. OF CASES	%
- Lipomas	11	4.4
- Sebaceous cysts	10	4.0
- Breast masses	10	4.0
- Cervical lymph nodes	6	2.4
- Ganglions	6	2.4
- Repairs of Epigastric hernias	4	1.6
- Skin malignancies	4	1.6
-Circumcisions	20	7.9
-Other Excision/Biopsies	4	1.6
TOTAL	75	29.9

TABLE 3 Types of wound sutured

WOUNDS	No. OF CASES	%
-Cut wounds	27	10.7
-Lacerated wounds	14	5.6
-Stab wounds	3	1.2
-Amputation/Disarticulation of fingers	4	1.6
-Reconstructive surgical procedures	2	0.8
TOTAL	50	19.9

TABLE 4 Types of Abscesses, incised and drained

ABSCESSES	No. OF CASES	%
-Peri-anal abscess	8	3.1
-Breast abscess	5	2.0
-Axillary abscess	4	1.6
-Inguinal abscess	4	1.6
-Neck abscess	3	1.2
-Abscess of fingers	3	1.2
-Hand abscess	2	0.8
-Injection abscess	2	0.8
-Peri-urethral abscess	1	0.4
Other abscess	7	2.8
Total	39	155

TABLE 5 Types of fractures reduced

FRACTURES	No. OF CASES	%
-Radial fractures	5	2.0
-Ulnar fractures	4	1.6
-Colle's fractures	4	1.6
-Tibial/Fibular fractures	3	1.2
-Supra-Condylar fractures (Humerus)	4	1.6
-Ankle fractures	3	1.2
-Humeral fractures (Shaft)	1	0.4
TOTAL	24	9.6

TABLE 6 Types of anal operations carried out

ANAL OPERATION	No. OF CASES	%
-Anal dilatation for chronic anal fissures	6	2.4
-Anal dilatation for 3^0 haemorrhoids	5	2.0
-Thiersh sutures for rectal prolapse	2	0.8
-Cauterisation of anal warts	1	0.4
-Biopsy of anal mass	1	0.4
TOTAL	15	6.0

TABLE 7 Types of testicular and scrotal operations performed.

Operation	No of pts	%
-Excision of spermatoceles	2	0.8
-Testicular biopsies	3	1.2
-Bilateral orchidectomy	2	0.8
-Hydrocelectomy	3	1.2
-Scrotal exploration for trauma	1	0.4
Total	11	4.4

TABLE 8 Other operations.

OPERATION	No of pts	%
-Passage of sounds for urethral strictures	9	3.5
-Removal of Foreign-bodies	6	2.4
-Manipulation of club feet	3	1.2
-Removal of malleolar screws	2	0.8
-Excision of in-grown toe nails	2	0.8
-Cauterization of warts	1	0.4
Total	23	9.1

TABLE 9. Anaesthetic techniques used in in day case surgery

Surgical Procedure	LA Alone	LA +Sedation	Sedation alone	LA Jelly +Sedation	LA Spray	None	Total No.	%
Excision + biopsy of masses	66	9	-		-	-	75	29.9
Surgical toilet + suture	37	13	-	-	-	-	50	19.9
Incision & Drainage (Abscess)	20	16	-	-	3	-	39	15.5
Reduction of Fractures	-	-	15		-	9	24	9.6
Anal Operations	2	13	-	-	-	-	15	6.0
Inguinal Operations	5	9	-		-	-	14	5.6
Scrotal & Testicular operations		11	-	-	-	-	11	4.4
OTHERS: Passage of sounds		-		9	-	-	9	3.6
Removal of Foreign bodies	3	-	-		-	3	6	2.4
Manipulation of CTEV Feet		-	3	-		-	3	1.2
Removal of bone screws	-	2	-	-	-	-	1	0.4
Cauterization of warts	1	-	-	-	-	-	1	0.4
In-growing nail Excision	-	2	-	-	-	-	2	0.8
TOTAL	134	75	18	9	3	12	251	

TABLE 10. The incidence of Post-operative wound sepsis in each group.

Procedure	Total no.	Cases of sepsis	Infection rate (%)
Excisions/Biopses of masses	75	9	12.0
Surgical toilet & suture of wounds	50	12	24.0
Incision & drainage of abscesses	39	36	92.3
Reduction of fractures	24	0	0
Anal operations	15	15	100.
Inguinal operations	14	3	21.4
Scrotal & testicular operations	11	3	27.2
Other operations:			
Passage of sounds	9	0	0
Removal of foreign bodies	6	1	16.6
Manipulation of club feet	3	0	0
Removal of maleollar screws	2	0	0
Excision of in-grown toe nails	2	2	100
Excision of warts	1	1	100
TOTAL	251	82	32.6

TABLE 11. Other complications

COMPLICATIONS	No. OF CASES	%
Haematoma formation in the wound	5	2.0
Wound induration	7	2.8
Wound dehiscence	2	0.8
Systematic effects of Lignocaine	3	1.2
Acute urinary retention	2	0.8
TOTAL	19	6.8

DISCUSSION

Day-case surgery in private surgical clinics is a relatively new concept in our local set-up as the majority of surgical operations are traditionally performed in hospitals, either as outpatients under local anaesthesia or as in-patients under general anaesthesia[1,2]. Recently however, there has been an increase in the number of surgical operations performed in private clinics, mainly due to economic factors, but also as a result of recent studies, which have highlighted the advantages of using local anaesthesia for the pain control in a wide range of surgical operations[1,2,3,5,6,7,8,11].

The social and economic advantages of this trend cannot be over-emphasized. In many developing countries, the waiting period for elective surgery in public hospitals may sometimes be as long as two years and the cost of medical treatment in private hospitals is in most cases prohibitive.

The surgical clinic should be suitably located, well organized and properly equipped. The physical location of the clinic is important mainly because post-operative patients need to have easy access to the clinics especially when coming for post-operative reviews. Ideally the clinic should be located on the ground floor where no lifts are available and should be within easy reach by public transport[10].

It is essential that the operation and recovery areas are clearly demarcated and isolated or preferably there should be separate operation and recovery rooms if space allows. In addition to various surgical equipments and instruments, the clinic must be suitably equipped to provide proper patient resuscitation when the need arises[6].

2. Patients and the surgical procedures ought to be carefully selected, and all patients properly counseled before surgery[2,7,9,16]. Careful and proper selection of the patients and the surgical procedures cannot be over-emphasized. Not only should selected patients be fit and healthy, but also the surgical procedures to be performed should not subject the patient to undue risk to life, severe pain or serious surgical complications[9].

3. The surgeon has to have adequate knowledge of the different techniques of administering the local anaesthetic. The outcome of the surgical operation therefore depends mainly on the proper administr-tion of the local anaesthetic[3,6,7]. The main anaesthetic techniques used in this study were local infiltration, regional/field block, regional nerve block combined with local infiltration along the surgical line and deep infiltration for anal operations. Most of these techniques are well described in various publications and standard surgical textbooks[1,2,3,5,6,8,11,17]. It is recommended that doctors should, as much as possible, be exposed to them.

There are definite advantages of using local anaesthesia for surgical operations, such as allowing the patient to remain awake during surgery, being relatively safe and well tolerated and avoiding complications and extra costs normally associated with general anaesthesia[1,7] .It however has its own disadvantages and risks such as occasionally failure to adequately control pain, allowing relatively shorter operating times, and in some cases systemic complications which usually result from injudicious use of large amount of the anaesthetic or accidental injection into a large blood vessel[3,6,7].

4. Post-operative pain is effectively managed by using suitable analgesics. T he problem of post-operative pain control used to be the main drawback in earlier day-case surgical operations[5]. However, with the

introduction of modern and powerful non-sedating analgesics, combined with proper pre-operative counseling and gentle tissue handling during surgery, post-operative pain has gradually ceased to be a major problem in day-case surgical operations[3,4,7,10,13]. In this study, the majorities of patients experienced only mild post-operative pain or discomfort and were adequately managed on mild to moderate oral NSAIDs such as paracetamol or ponstan.

A substantial number of patients however experienced moderate pain after surgery and these were usually managed by one of the following analgesic regimes: -

- Strong oral NSAIDs such as voltaren 50mg or cataflam 50mg t.i.d for the average adult patient.
- Strong parenteral NSAIDs such as intra-muscular voltaren 150mg or Intra- muscular Feldene 40mg for average adult patient. These drugs were found to be particularly appropriate for day-Care surgery because of their effectiveness in controlling moderate post-operative pain without causing sedation or emesis[2,3,10,12]
- A combination of strong parenteral NSAIDs and parenteral narcotic analgesics (i.e. i-m Voltaren 75mg and i-m Pethidine 50mg for average adult patient).This combination was found to greatly increase the efficacy of analgesia while at the same time significantly reducing the adverse effects of both drugs[2,12] .

These patients were usually discharged home on moderate or strong oral NSAIDs such as Ponstan or Cataflam.

A relatively smaller number of patients developed severe pain after surgery and these were normally given a full dose of parenteral narcotic analgesics (i.e. I-M pethidine 100mg for average adult). Alternatively parenteral Tramol (i.e. 100mg for average adult patient) was administered. At this dose Tramol was found to be as effective in controlling severe post-operative pain as a full dose of Pethidine though with practically no sedative effects. It however had relatively strong emetic effects in a substantial number of patients[4]. These patients were usually discharged home on strong oral NSAIDs or where substantial post-operative pain was expected to develop while the patient was at home oral Tramol was supplied as well[3,4,13]. As a rule these patients were only allowed to go home when pain free and able to walk. All post-operative patients were routinely reviewed on the second or third post-operative day.

The rate of post-operative wound sepsis in this study was very high (32%) as compared to that observed in various other surgical institutions or units where they vary from 6% to 23%[15]. There are two possible reasons for this. Firstly, in the early period of the study, both the organization and equipping of the clinic were probably inadequate falling short of the required standards. With improved organization and better equipping in the clinic, the rate of wound infection significantly reduced during the later period of the study.

During this study, three patients developed systemic complications of Lignociane following administration of what appeared to be quite normal doses by local infiltration technique. Symptoms included confusion, convulsions, rapid respiration and tacycardia. This study showed definite advantages of carrying out a wide range of minor and intermediate surgical operations in private surgical clinics mainly under local anaesthesia but occasionally with added sedation. Surgeons in our local set-up are therefore encouraged to adequately equip their clinics so as to be able to carry out some outpatients and Day-Case surgical operations.

ACKNOWLEDGEMENT

I am extremely grateful to Mrs. M. W. Maina Matron and Director of Nakuru Maternity and Nursing Home for allowing me to use the Sterilization Unit at her hospital to sterilize surgical gauze and linen for the entire duration of the study. I would also like to thank Phillips Pharmaceuticals (K) Ltd for the supply of current literature on Tramol.

REFERENCES

1. Magoha G A O. Local infiltration and spermatic cord block for inguinal, scrotal and testicular surgery. East African Medical Journal. 1998; 75: 579-581.
2. V.M. Ramyil, D. Iya, B. C. Ogbonna and N.K. Dakum. Safety of Day Care hernia repair in Jos, Nigeria.
3. Coleman A. Post-operative pain control. Surgery. 1995; 31: 201-204.
4. Lee C. R., McTavish D, Sorkin E M. Tramadol: A preliminary review of its pharmacodynamic and pharmacokinetic properties and therapeutic potential in various acute and chronic pain states. Drugs. 1993; 46: 313-340.
5. Udeh F N. Ten years of Day-Case herniorrhaphies in Nigeria. East African Medical Journal. 1983; 60: 393-396.
6. Dobson. Anaesthesia at the district hospital. W. H. O. 1988: 86-97.
7. Ujah I A O, Mutihir J T. Pain control in voluntary surgical contraception. East Afr Med J 1998; 75: 139-141.
8. Devlin H B. Groin hernias. Surgery. 1993; 21: 385-396.
9. Hitchcock M. Day-Case anaesthesia: the surgical perspective. Surgery 1998; 42: 141-144
10. Jarret P E M. Day-Case surgery. Surgery 1995; 28: 5-7.
11. Amin. A. Carapeti, Robin. K. S. Phillips. Haemorrhoids. Simon Wakefield and Andrew Shorthouse. Anal fissure. Surgery. 1998; 41: 66-69. and 95-96.
12. Amata A O, Samaroo L N, Monplaisir S N. Pain control after major surgery. East Afr Med J 1999; 76: 269-271.
13. Moore R A, Mc Quay H J. Single-patient data meta-analysis of 3453 post-operative patients: oral Tramadol versus placebo, codeine and combination analgesics. Pain. 1997; 69: 287-294.
14. Vickers M D, Paravicini P. Comparison of tramadol with morphine for post-operative pain following abdominal surgery. European Journal of Anaesthesiology. 1995; 12: 265-271.
15. Kotiso B, Aseffa A. Surgical wound infection in a teaching hospital in Ethiopia East Afr Med J. 1998; 75: 402 – 405.
16. Hobsley M, Johnson A, Treasure T. Day-Surgery revisited. Current surgical practice. 1993; 6: 32-41
17. Rintoul R F. Farquharson's Textbook of Operative Surgery 6th edition Churchill Livingstone. 1978.