

Case Report

EPIDURAL ANAESTHESIA FOR SURGERY IN ADVANCED CANCER

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Patients with advanced cancer often present for surgery in a very poor clinical state. We report the use of epidural bupivacaine anaesthesia for surgical excision of a tumor and subsequent continuous infusion of bupivacaine and fentanyl for postoperative pain management in a 46 year old man with advanced sarcoma of the left thigh, cannon ball secondary deposits in the lungs and haemoptysis.

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INTRODUCTION

Regional anaesthetic techniques such as Epidural or subarachnoid block have many advantages over general anaesthesia when used for surgical procedures in parts of the body below the umbilicus. These include decreased intraoperative blood loss, reduced incidence of deep vein thrombosis and pulmonary embolism in the early postoperative period (Moldy *et al*, 1980; McKenzie, 1991). In patients with lung pathology as may result from multiple pulmonary metastasis from a carcinoma else where in the body, the use of a regional technique of anaesthesia avoids the complications that may result from ventilation/perfusion mismatch if general anaesthesia is used (McKenzie *et al*, 1980). Continuous regional anaesthetic techniques have been shown to improve surgical outcome, reduce surgical mortality and morbidity and reduce loss of hospitalization (Wilson *et al*, 1990).

Local anaesthetic may be combined with opiates in Epidural or spinal administration to achieve excellent pain relief. The combination allows use of smaller doses of each agent than would be required to achieve the same goal using either alone (Ambouleish *et al*, 1988).

Case Presentation

L.J. a 46 year old male civil servant was referred to the University College Hospital

(UCH) Ibadan with a left thigh tumor. He had presented at the referring hospital with a painless swelling on the anterior surface of his left thigh of one-year duration and cough with haemoptysis of 2 months duration. Examination revealed an ill looking man with mild pallor and globular, non-tender, woody-hard mass on the anterior surface of his left thigh attached to underlying muscle. His respiratory rate was 22 breaths per minute. Air entry into both lungs was good bilaterally. His pulse rate was 80 per minute, regular and of good volume. The blood pressure was 130/80mmHg. The apex beat was felt at the 6th left intercostal space in the midclavicular line. The heart sounds were normal.

Pelvic X-ray showed a left thigh, soft tissue tumor not attached to underlying bone and chest radiograph showed cannon ball secondaries. Diagnosis of soft tissue sarcoma of left thigh with metastasis to the lungs was made.

A decision to urgently excise the tumor under regional anaesthesia was made to prevent it from encroaching on the femoral vessels. His airway was of Mallampati class I and the coagulation profile was normal. He was assessed ASA III. An epidural block was achieved by injecting 25ml of 0.5% plain bupivacaine into the epidural space, through a 16-gauge catheter inserted at the L2/L3 intervertebral space. Surgery lasted

2. Orthopnoea - Dyspnoea that occurs in the recumbent position and requireslevation of the head with one or several pillows to prevent its reoccurrence; as with case of the patient reported in this paper.
3. Paroxysmal nocturnal dyspnoea (PND) - an exaggerated form of orthopnoea that occurs when the patient is abruptly awakened at night with a feeling of suffocation.
4. Dyspnoea at rest 5. Pulmonary Edema - Fluid accumulation within the alveoli.

Only 1 - 3 outlined above were clearly manifested in the elderly patient under discussion. This can help to also confirm that the CHF is actually Heart failing syndrome (HFS), it is acute, it is not chronic or complicated.

Rales and dullness to percussion, usually over the bases of the Lung are common pulmonary findings. Systematically, inadequate perfusion of the skeletal muscles leads to easy Fatigability and weakness. PND could result from redistribution of blood flow to the kidney during recumbence in early course of CHF. Oliguria may occur later as the failure worsens. A host of cerebral symptoms may also be observed and can include impairment of memory, confusion, Insomnia and anxiety. Auer *et al* 1992).

A number of cardiac and systemic physical findings are observed with varying degrees of frequency. An early diastolic third heart sound (S3) is believed to be related to impaired diastolic relaxation of the ventricle and suggests an elevated systolic and diastolic blood pressure. A resting sinus Tachycardia is often present, as in the case of the elderly patient under

discussion. Hyperuricemia and diabetes may as well present (Auer *et al* 1992).

Digoxin was mainly used here to treat CHF (FHS). Other digitalis glycosides have also been used as inotropic drugs for the treatment of CHF and other congestive states.

Digoxin when given orally is rapidly absorbed. About 50% or more of the drug is absorbed. Rate of absorption is rapid and fairly complete (Benjamin & Lot 1984).

Digoxin is distributed widely throughout all the body tissues. The drug is less rapidly excreted and this serves as a warning to the patient taking Digoxin. If the patient has been given digoxin during the previous week, the dose should be reduced accordingly (Benjamin & Lot 1984). Because of impaired renal function and excretion in elderly patient as in the case of the patient under discussion, they frequently require lower than the recommended doses. (Ilena *et al* 1992).

The rate of elimination of digoxin like other Cardiac glycosides is closely correlated with the duration of action. Elimination rate is rapid and it is 2 Or 3 days (Auer 1992).

However considerable controversy still remains over the true benefit of Cardiac glycosides such as digoxin in the management of CHF (FHS) particularly in the chronic management (Auer, 1992). The impression and problems list such as Azotemia, Anemia, Chronic renal failure, Hyponatremia, Hyperkalemia, Hyperchloronemia, Hyperorpnea, Hyperphosphatemia, Proteinuria, Lactic Acidosis and Hypertension have been established to be associated with congestive Heart Failure (CHF) or failing heart syndrome (FHS) (Cynthia *et al* 1992).

REFERENCES

- Agunwa N (1996)** Congestive heart failure. Therapeutic basis of Clinical Pharmacy in the tropics. P.46 2nd edition. (Optimal Publishers, Enugu Nigeria).
- Castleman, B and Page L.B. (1984)** Congestive heart failure, Renal failure and metabolic acidosis. The New England Journal of Medicine Pg. 1260 Vol. 284 Number 22.
- Cohn JN: (1988)** Current therapy of the failing heart. Circulation 78; 1099 - 1107 (MARK).
- Raechl C.L; Nolan P.B. and Paul E Nolan (1992)** Congestive Heart failure - Clinical Pharmacy and Therapeutics 5th Edition (Herfindal, Gourley and Hart) Pg. 609-631. (Williams and Wildins).
- Falase A.O. (1997)** Cardiovascular system - An introduction to clinical Diagnosis in the tropics (Revised Ed) Pg. 16 (Venture Ltd. Challenge Ibadan Nig.).
- Auer I.K. (1992)** Cardiovascular Disorders Work Book for Clinical Pharmacy and Therapeutics (Gourley, Hart and Herfindal) 5th Edition Pg. 92 (Williams and Wilkins).

three and half-hours and analgesia was adequate throughout the duration. Two pints of blood were transfused as the tumor was very vascular and 1500ml of blood was lost. Cardiovascular and respiratory parameters remained within normal limits. The resulting wound was covered with a flap from adjacent skin.

0.125% bupivacaine solution containing 2.5 microgrammes per ml of Fentanyl was administered with a syringe pump at 10ml per hour through the epidural catheter. This provided postoperative analgesia in the intensive care unit (ICU) during the first 24 hours after surgery. Postoperative analgesia was adequate as the patient's pain score on a 10cm visual analogue scale ranged between 0 and 3cm. Analgesia was continued with paracetamol tablets when epidural analgesia was discontinued and patient transferred to the surgical ward. Extensive necrosis of the flap and skin around the edge, of the wound resulting from the tumor excision developed. When this was to be excised and covered with split thickness skin graft two weeks later, the patient asked for the same form of anaesthesia and postoperative analgesia and it was repeated with good effects.

DISCUSSION

The widespread metastasis of the left thigh cancer which had already resulted in haemoptysis would greatly increase the risk of general anaesthesia in this patient and a regional technique such as epidural anaesthesia was considered a safe option. Mid thoracic epidural anaesthesia, unlike general anaesthesia may not have any significant effects on lung volumes and other parameters and a catheter technique offers the extra advantage of post-operative analgesia, and improved ability to cough. Despite the choice of regional technique, it was still essential to assess for possible difficulty with the Mallampati test should endotracheal intubation be necessary during the course of management of this patient. (Mallampati *et al*, 1985).

The discovery of the presence of opioid receptors in the spinal cord and that

epidural or intrathecal administration of opioid drugs could produce analgesia led to the use of spinal opiates in the clinical setting. Spinal opioids produce no evidence of motor or sympathetic neural blockade, nor is normal sensation altered while more effective pain relief is produced compared with traditional parenteral narcotics. This action allows earlier ambulation, earlier recovery of pulmonary and gastrointestinal functions and a reduction in the length of hospitalisation compared with parenteral narcotics (Mallampati *et al*, 1985, Broekema *et al*, 1996). A combination of the local anesthetic (bupivacaine) and the opioid drug (Fentanyl) in this patient allowed the use of smaller doses of each agent than would be required to achieve the same goal using either alone. This reduced the chances of occurrence of the adverse effects of either agent, e.g. hypotension and respiratory depression, which could have been easily precipitated during the course of surgery.

Postoperative analgesia with epidural block is usually provided in the ICU or a high dependency unit (HDU), especially in developing countries with limited facilities. This is to permit adequate monitoring of the patient as any of the complications of the block e.g. hypotension, delayed respiratory depression or urinary retention could occur. This technique of postoperative analgesia was used in this case for only the first 24 hours after surgery to minimise the patient stay in the ICU. This form of postoperative analgesia has been used continuously for up to 46 days in a patient with cancer pain (Broekama, *et al*, 1996).

Conclusion

Regional anaesthesia with epidural bupivacaine can be employed safely when appropriate inpatients with advanced cancer. Adequate surgical conditions are provided with little or no cardiorespiratory disturbance. Blood loss is reduced while the technique can also be used to provide prolonged, safe and satisfactory postoperative analgesia.

REFERENCES

- Abouleish E.**, Rawal N, Fallon K, Iternandex D, Combined intrathecal morphine and s for Cesarean Section. *Anaesth-Analg.* 1988, 67: 370.
- Broekema A. A.**, Gielan MJM, Hennis PJ, (1996) Postoperative analgesia with continuous epidural surfentanyl and bupivacaine: A prospective study in 614 patients. *Anaesth-Analg.*; 82: 754-9.
- Bromage P.R.**, Campoves, E. Chestnut, D. Epidural narcotics for postoperative analgesia. *Anaesth-Analg* 1980; 59: 473.
- Cousins M.J.**, The spinal route of analgesia for acute and chronic pain P. 454. In Dubner R, Gebhart GF, Bond MR (eds.) *Proceedings of the 5th World Congress on pain Vol. 3.* Elsevier, Amsterdam 1988.
- Glynn C.J.**, Mather I.E., Cousins M.J. *et al.* Peridural the pethidine in humans Analgesic response, pharmacokinetics and transmission into csf. *Anaesthesiology* 1981; 55: 520.
- Lam, A.M.**, Knill R.L, Thompson, W.R. *et al* Epidural fentanyl does not cause delayed respiratory depression. *Can. Anaesth. Soc. J.* 1983; 30: 578.
- Logas W.G.**, El-Baz, N. El-Ganzouri A. *et al.* Continuous thoracic epidural analgesia for postoperative pain relief following Thoracotomy. A randomized prospective study. *Anesthesiology* 1987, 67: 787.
- Lomessy, A.**, Magnin, C., Viace J.P. *et al.* Clinical advantages of fentanyl given epidurally for post-operative analgesia. *Anesthesiology* 1984; 61: 466
- Mallampati S.G.**; Gatt S. P.; Gugino L. D.; Dessai S. P.; Waraksa B; Freidberger D and Liu P.L. (1985). A clinical sign to predict difficult tracheal intubation: a prospective study. *Canadian Anaesthetists Society Journal.* 31: 429 - 434.
- McKenzie, P.J.** (Ed.): Deep vein thrombosis. *Brit J. Anaesth.* 1991, 66: 4
- McKenzie P.J.**, Wishart H.Y., Dewar K.M.S. *et al.* Comparison of the effects of spinal anaesthesia and general anaesthesia on postoperative oxygenation and perioperative mortality. *Brit. J. Anaesth* 1980; 52:49
- Moldy, J.** Malmbarg, P., Karstrom, G. Effect of epidural versus general anaesthesia on calf blood flow. *Acta. Anaesthesiol. Scand.* 1980, 24: 305.
- Wilson, P.R.**, Yaksh, T.L., Elliot, B., Acute and chronic pain. In Cucchiara R.F., Michenfelder J.D. (eds) *Clinical Neuro-anaesthesia.* Churchill Livingstone New York 1990 Pp 473-512.
- Ya Ksh T.L.**, Nonehed R, (1985): The physiology and pharmacology of spinal opiates. *Ann. Rev. Pharmacol. Toxicol, Col:* 25: 422
- Yeager M.P.**, Glass D.D., Neff R.K., Brinck-Johnson T (1987). Epidural anaesthesia and analgesia in high-risk surgical patients. *Anesthesiology*, 66:729.