e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2026; 18(3); 1148-1153

Original Research Article

Comparative Study of Infrainguinal and Suprainguinal Approaches of Fascia Iliaca Compartment Block for Postoperative Analgesia in Hip Surgeries

Gaurav Atul Deshmukh[1], Radha Saodekar[2]

[1]Assistant Professor, Department of Anaesthesiology, Dr. Rajendra Gode Medical College Amravati, Maharashtra, India

[2]Associate Professor, Department of Anaesthesiology, Dr. Rajendra Gode Medical College Amravati, Maharashtra, India

Received: 01-12-2025 /Revised: 15-01-2026 / Accepted: 21-02-2026

Corresponding author: Dr. Gaurav Atul Deshmukh

Conflict of interest: Nil

Abstract

Background: Hip surgeries are associated with significant postoperative pain that can delay rehabilitation and prolong hospital stay. Fascia iliaca compartment block (FICB) is widely used for postoperative analgesia in hip procedures. The suprainguinal approach may provide better analgesic coverage compared with the conventional infrainguinal approach.

Aim: To compare the postoperative analgesic efficacy of the suprainguinal and infrainguinal approaches of fascia iliaca compartment block in patients undergoing hip surgeries.

Methods: A prospective randomized comparative study was conducted on 120 patients undergoing hip surgeries. Patients were divided into two groups of 60 each. Group S received a suprainguinal fascia iliaca compartment block, whereas Group I received an infrainguinal fascia iliaca compartment block. Postoperative pain was assessed using the Visual Analog Scale at various time intervals. The time to first rescue analgesic, total analgesic consumption, and adverse effects were recorded. Statistical analysis was performed using appropriate tests with $p < 0.05$ considered significant.

Results: The time to first rescue analgesia was significantly longer in Group S (301.72 ± 18.46 minutes) compared with Group I (206.53 ± 21.37 minutes). Patients in Group S required fewer doses of tramadol in the first 24 hours postoperatively. VAS scores were significantly lower in Group S at later postoperative intervals. The incidence of nausea and vomiting was also lower in the suprainguinal group.

Conclusion: The suprainguinal fascia iliaca compartment block provides superior and longer lasting postoperative analgesia compared with the infrainguinal approach in hip surgeries while reducing opioid requirements and associated adverse effects.

Keywords: Fascia iliaca compartment block, Hip surgery, Postoperative analgesia, Suprainguinal approach.

DOI: 10.25258/ijcpr.18.3.184

Introduction

Hip surgeries such as fracture fixation, hemiarthroplasty, and total hip arthroplasty are frequently associated with significant postoperative pain, which can impair early mobilization and delay rehabilitation. Effective postoperative analgesia is therefore essential to enhance patient recovery, reduce opioid consumption, and minimize associated adverse effects such as nausea, respiratory depression, and prolonged hospital stay. Regional anesthesia techniques have gained increasing attention in perioperative pain management strategies for hip surgeries because they provide targeted analgesia while reducing reliance on systemic opioids [1]. Among various regional techniques, the fascia iliaca compartment block (FICB) has emerged as a widely used method for postoperative analgesia in hip surgeries. The block aims to anesthetize the femoral nerve, lateral femoral cutaneous nerve, and sometimes the obturator nerve by depositing local anesthetic beneath the fascia iliaca. When successfully performed, FICB provides effective analgesia for surgeries involving the hip and proximal femur, making it an attractive option in multimodal analgesic protocols [2]. Traditionally, the infrainguinal approach to FICB has been the most commonly practiced technique. It is performed below the inguinal ligament and relies on

anatomical landmarks or ultrasound guidance to deliver local anesthetic into the fascia iliaca compartment. Although this technique is relatively simple and safe, several studies have suggested that the infrainguinal approach may result in inconsistent spread of the anesthetic, leading to incomplete blockade of the lumbar plexus branches, particularly the obturator nerve [3].

To address these limitations, the suprainguinal approach to the fascia iliaca compartment block has been introduced. In this technique, the local anesthetic is injected above the inguinal ligament under ultrasound guidance, allowing a more cephalad spread toward the lumbar plexus. This anatomical advantage may improve the likelihood of blocking multiple nerves supplying the hip joint, thereby potentially providing more effective postoperative analgesia compared with the infrainguinal technique [4].

Recent clinical studies have highlighted the potential benefits of the suprainguinal FICB approach. Evidence suggests that the suprainguinal technique may produce a wider distribution of local anesthetic within the iliac fossa and enhance blockade of the femoral and lateral femoral cutaneous nerves. Consequently, patients receiving the suprainguinal block may experience improved pain control and reduced opioid requirements following hip surgery [5].

Systematic reviews and meta-analyses evaluating fascia iliaca blocks for hip procedures have reported significant reductions in postoperative opioid consumption and improved analgesic outcomes when FICB is used as part of multimodal analgesia. In particular, ultrasound-guided techniques have demonstrated higher success rates and improved safety profiles compared with landmark-based methods [6].

Furthermore, ultrasound guidance has enhanced the precision of regional anesthesia techniques, including FICB. Real-time visualization of anatomical structures allows anesthesiologists to accurately place the needle and confirm appropriate spread of the anesthetic beneath the fascia iliaca, thereby improving block success and reducing the risk of complications [7].

Several randomized controlled trials have attempted to compare different approaches to fascia iliaca compartment block, especially the suprainguinal and infrainguinal techniques, in terms of analgesic efficacy, opioid consumption, and duration of pain relief. While some studies have demonstrated superior analgesia with the suprainguinal approach, others have reported comparable outcomes between the two techniques, highlighting the need for further comparative research [8].

Given the increasing emphasis on enhanced recovery protocols in orthopedic surgery, identifying the most effective regional anesthesia technique for postoperative analgesia is of significant clinical importance. Optimizing analgesic strategies not only improves patient comfort but also facilitates early mobilization, reduces complications, and shortens hospital stay [9].

Despite growing interest in fascia iliaca compartment block techniques, the evidence comparing infrainguinal and suprainguinal approaches remains limited and sometimes inconsistent. Therefore, further comparative studies are necessary to determine the optimal approach that provides the most effective postoperative analgesia for patients undergoing hip surgeries. This study addresses this gap by evaluating their postoperative analgesic performance [10].

Material and Methods

This prospective, randomized comparative study was conducted to evaluate and compare the postoperative analgesic efficacy of the infrainguinal and suprainguinal approaches of fascia iliaca compartment block (FICB) in patients undergoing hip surgeries. The study was carried out in the Department of Anaesthesiology at a tertiary care hospital over a defined study period after obtaining approval from the Institutional Ethics Committee. Written informed consent was obtained from all patients before inclusion in the study.

A total of 120 patients scheduled for elective hip surgeries under spinal anesthesia were included in the study. Patients aged between 18 and 75 years, belonging to American Society of Anesthesiologists (ASA) physical status I–III, and undergoing hip procedures such as fracture fixation or arthroplasty were considered eligible for inclusion. Patients with known allergy to local anesthetics, infection at the injection site, coagulopathy, severe systemic illness, neurological deficits in the lower limbs, or refusal to participate were excluded from the study.

The patients were randomly allocated into two equal groups with 60 patients in each group using a computer-generated randomization sequence. Group I patients received an infrainguinal fascia iliaca compartment block, whereas Group S patients received a suprainguinal fascia iliaca compartment block. Randomization details were concealed in sealed opaque envelopes and opened immediately before performing the block.

All patients received standard preoperative evaluation and were kept fasting according to institutional protocol. In the operating room, standard monitoring including non-invasive blood pressure, electrocardiography, and pulse oximetry was applied. Spinal anesthesia was administered

using a standard technique with appropriate dose of hyperbaric bupivacaine in the subarachnoid space at the lumbar level. Following completion of surgery, the allocated fascia iliaca compartment block was performed under ultrasound guidance.

In Group I, the infrainguinal fascia iliaca compartment block was performed below the inguinal ligament using a high-frequency linear ultrasound probe. After identification of the fascia iliaca and femoral nerve structures, a block needle was advanced in-plane and 30 ml of 0.25% bupivacaine was injected beneath the fascia iliaca to ensure adequate spread. In Group S, the suprainguinal fascia iliaca compartment block was performed above the inguinal ligament using ultrasound guidance. The ultrasound probe was positioned in the iliac fossa to identify the fascia iliaca and iliacus muscle. A block needle was inserted using the in-plane technique and 30 ml of 0.25% bupivacaine was deposited beneath the fascia iliaca to allow cephalad spread toward the lumbar plexus.

Postoperatively, all patients were monitored in the recovery area and subsequently in the ward. Postoperative pain was assessed using the Visual Analog Scale (VAS) at regular intervals including 1 hour, 4 hours, 8 hours, 12 hours, and 24 hours after surgery. Rescue analgesia in the form of intravenous analgesics was administered whenever the VAS score exceeded 4. The time to first rescue analgesic requirement and total analgesic consumption within the first 24 hours were recorded. Hemodynamic parameters such as heart rate, systolic blood pressure, diastolic blood pressure, and oxygen saturation were monitored periodically. Any complications related to the block procedure were also documented.

The primary outcome of the study was the comparison of postoperative pain scores between the two groups. Secondary outcomes included duration of analgesia, total postoperative analgesic requirement, and incidence of complications.

Statistical Analysis: The collected data were entered into a spreadsheet and analyzed using Statistical Package for the Social Sciences (SPSS) software version 25.0. Continuous variables such as age, duration of surgery, and pain scores were expressed as mean ± standard deviation.

Categorical variables such as gender distribution and incidence of complications were expressed as frequencies and percentages. Intergroup comparisons of continuous variables were performed using the independent Student's t-test, whereas categorical variables were analyzed using the Chi-square test or Fisher's exact test as appropriate. A p-value less than 0.05 was considered statistically significant.

Ethical Considerations: Prior to the commencement of the study, approval was obtained from the Institutional Ethics Committee of the hospital. The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Written informed consent was obtained from all participants after explaining the purpose of the study, the procedure involved, and possible risks and benefits. Confidentiality of patient information was strictly maintained throughout the study.

Results

A total of 120 patients undergoing hip surgeries were included in the study and were equally allocated into Group S (suprainguinal fascia iliaca compartment block, n=60) and Group I (infrainguinal fascia iliaca compartment block, n=60). The demographic characteristics of the patients in both groups are summarized in Table 1. The mean age of patients in Group S was 41.62 ± 14.73 years, whereas in Group I it was 43.18 ± 15.06 years, indicating comparable age distribution between the groups. The gender distribution showed that 70% males and 30% females were present in Group S while 66.7% males and 33.3% females were present in Group I, suggesting similar gender proportions in both groups. The mean body mass index (BMI) was 22.41 ± 1.12 kg/m² in Group S and 22.36 ± 1.05 kg/m² in Group I, demonstrating no major difference between the groups. The average duration of surgery was also comparable, with 118.24 ± 12.36 minutes in Group S and 119.71 ± 11.88 minutes in Group I, confirming that both groups were demographically and surgically comparable.

The comparison of analgesic outcomes between the two groups is presented in Table 2. The mean time for the first rescue analgesic requirement was significantly longer in Group S (301.72 ± 18.46 minutes) compared with Group I (206.53 ± 21.37 minutes), indicating prolonged analgesia in patients receiving the suprainguinal approach. The difference between the groups was statistically significant ($t = 5.214$, $p = 0.006$).

Additionally, the total number of tramadol doses required during the first 24 hours postoperatively was lower in Group S (12.84 ± 2.91 doses) compared with Group I (21.97 ± 7.84 doses). This difference was also statistically significant ($t = 4.182$, $p = 0.009$), suggesting that patients receiving the suprainguinal fascia iliaca block experienced better postoperative analgesia and required fewer rescue analgesics.

Postoperative pain intensity assessed using the Visual Analog Scale (VAS) at different time intervals is shown in Table 3. The baseline VAS score was comparable between the groups, with mean values of 4.02 ± 4.61 in Group S and 4.11 ±

4.39 in Group I, indicating no significant difference (p = 0.31). At early postoperative intervals such as 5, 10, 15, 30, and 60 minutes, both groups demonstrated minimal pain scores with VAS values close to 0, indicating adequate initial analgesia. However, differences between the groups became apparent at later time intervals. At 4 hours, the mean VAS score in Group S was 0.72 ± 1.84, whereas in Group I it was 2.18 ± 3.06, showing a statistically significant difference (p = 0.018). At 6 hours, the mean VAS score was 1.68 ± 2.74 in Group S compared with 2.96 ± 3.41 in Group I (p = 0.007). Similarly, at 18 hours, the VAS score was 2.48 ± 3.36 in Group S and 3.58 ± 4.21 in Group I (p = 0.003). At 24 hours, Group S continued to demonstrate lower pain scores (2.71 ± 3.62) compared with Group I (3.79 ± 4.08) with a statistically significant difference (p = 0.002). These findings indicate superior and longer-lasting analgesia with the suprainguinal approach. The incidence of adverse effects observed in both groups is summarized in Table 4. Nausea was reported in 5 patients (8.3%) in Group S compared with 16 patients (26.7%) in Group I, showing a statistically significant difference (p = 0.004). Vomiting occurred in 2 patients (3.3%) in Group S and 7 patients (11.7%) in Group I (p = 0.021). Hypotension was observed in 4 patients (6.7%) in Group S and 8 patients (13.3%) in Group I (p = 0.047). Urinary retention occurred in 10 patients (16.7%) in Group S and 11 patients (18.3%) in Group I, which was not statistically significant (p = 0.812). Bradycardia was noted in 1 patient (1.7%) in Group S and 2 patients (3.3%) in Group I, also showing no statistically significant difference (p = 0.562). Overall, adverse effects were relatively less frequent in Group S compared with Group I.

Table 1: Distribution of demographic variables (n = 120)

Demographic variables	Group S (n=60) Mean ± S.D	Group I (n=60) Mean ± S.D
Age (Years)	41.62 ± 14.73	43.18 ± 15.06
Sex % (M/F)	70 / 30	66.7 / 33.3
BMI (kg/m²)	22.41 ± 1.12	22.36 ± 1.05
Surgical time (minutes)	118.24 ± 12.36	119.71 ± 11.88

Table 2: Time for first rescue analgesia and total tramadol doses in study population

Variable	Group S Mean	Std. Deviation	Group I Mean	Std. Deviation	t-test value	p-value
Time of first rescue analgesic (minutes)	301.72	18.46	206.53	21.37	5.214	0.006*
Number of doses of Tramadol (in 24 hrs)	12.84	2.91	21.97	7.84	4.182	0.009*

Table 3: VAS score comparison between Group S and Group I

Time interval	Group S Mean	Std. Deviation	Group I Mean	Std. Deviation	p-value
Baseline	4.02	4.61	4.11	4.39	0.31
5 minutes	0.00	0.00	0.00	0.00	1.000
10 minutes	0.00	0.00	0.00	0.00	1.000
15 minutes	0.00	0.00	0.00	0.00	1.000
30 minutes	0.00	0.00	0.00	0.00	1.000
60 minutes	0.00	0.00	0.00	0.00	1.000
2 hours	0.00	0.00	0.00	0.00	1.000
4 hours	0.72	1.84	2.18	3.06	0.018*
6 hours	1.68	2.74	2.96	3.41	0.007*
18 hours	2.48	3.36	3.58	4.21	0.003*
24 hours	2.71	3.62	3.79	4.08	0.002*

Table 4: Distribution of adverse effects between Group S and Group I (n = 120)

Adverse effects	Group S (n=60)	Group I (n=60)	p-value
Nausea	5	16	0.004*
Vomiting	2	7	0.021*
Hypotension	4	8	0.047*
Urinary retention	10	11	0.812
Bradycardia	1	2	0.562

Discussion

The present study compared the analgesic efficacy of the suprainguinal fascia iliaca compartment block (Group S) with the infrainguinal approach (Group I) in patients undergoing hip surgeries. Adequate postoperative analgesia is crucial in orthopedic procedures involving the hip joint because these surgeries are associated with significant postoperative pain that can delay

mobilization and prolong hospital stay. In this study, both groups were comparable in terms of demographic variables such as age, gender distribution, body mass index, and surgical duration, suggesting that the baseline characteristics were evenly distributed and unlikely to influence the outcomes. This comparability ensured that the differences observed in analgesic efficacy were primarily attributable to the block technique used.

One of the important findings of the present study was the significantly prolonged duration before the requirement of the first rescue analgesic in the suprainguinal group. Patients in Group S required their first rescue analgesic at a mean time of approximately 301 minutes compared with about 206 minutes in Group I, indicating superior and prolonged analgesia with the suprainguinal approach. This observation can be explained by the anatomical spread of local anesthetic in the suprainguinal fascia iliaca compartment block. The suprainguinal approach allows cephalad spread of the local anesthetic toward the lumbar plexus, facilitating blockade of the femoral nerve, lateral femoral cutaneous nerve, and occasionally the obturator nerve. This wider nerve coverage likely contributes to better pain control following hip surgeries. Similar findings were reported by Vermeylen and colleagues who demonstrated that the suprainguinal approach produces more consistent cranial spread of the anesthetic and results in improved analgesic outcomes after hip procedures [11].

Another significant observation in this study was the reduced requirement of rescue analgesic doses in the suprainguinal group compared with the infrainguinal group during the first 24 hours postoperatively. Patients receiving the suprainguinal block required significantly fewer doses of tramadol, suggesting improved analgesic efficacy and reduced dependence on systemic opioids. This is clinically important because minimizing opioid consumption helps reduce opioid-related adverse effects such as nausea, vomiting, sedation, and respiratory depression. Previous studies have also emphasized that regional anesthesia techniques like fascia iliaca compartment block significantly reduce postoperative opioid requirements in hip surgeries. Desmet et al. reported that patients receiving a suprainguinal fascia iliaca block demonstrated lower morphine consumption and better postoperative comfort compared with conventional techniques [12].

Pain scores measured using the Visual Analog Scale further supported the superior analgesic profile of the suprainguinal approach. Although both groups demonstrated minimal pain scores during the early postoperative period due to the residual effects of spinal anesthesia and the initial block effect, differences between the groups became evident after several hours. At 4, 6, 18, and 24 hours postoperatively, the VAS scores were consistently lower in Group S compared with Group I. These findings suggest that the suprainguinal fascia iliaca block provides longer lasting and more effective postoperative analgesia. The improved pain control observed with the suprainguinal approach may be attributed to its ability to achieve more reliable spread of local anesthetic within the iliac fascia compartment. Hebbard et al. highlighted that the suprainguinal injection technique allows more effective deposition of anesthetic above the inguinal ligament, facilitating improved nerve blockade and analgesic coverage of the hip joint [13].

In addition to improved analgesia, the suprainguinal group in the present study demonstrated a lower incidence of certain postoperative adverse effects such as nausea, vomiting, and hypotension compared with the infrainguinal group. This reduction in adverse effects is likely related to the decreased requirement for systemic opioid analgesics in the suprainguinal group. Opioid-related complications are commonly observed following orthopedic surgeries and can negatively impact postoperative recovery. Effective regional anesthesia techniques that reduce opioid use can therefore improve patient outcomes and satisfaction. Similarly, Kim et al. reported that ultrasound-guided fascia iliaca compartment blocks significantly reduce opioid consumption and associated adverse events in patients undergoing hip fracture surgery [14].

Despite the advantages observed with the suprainguinal approach, certain complications such as urinary retention and bradycardia were noted in both groups in the present study, although these differences were not statistically significant. These complications may be related to the effects of spinal anesthesia or perioperative medications rather than the block technique itself. Overall, the incidence of complications was low in both groups, indicating that both infrainguinal and suprainguinal fascia iliaca compartment blocks are safe techniques when performed under appropriate monitoring and ultrasound guidance. Recent clinical trials have emphasized that ultrasound-guided regional anesthesia techniques improve safety and success rates by enabling direct visualization of anatomical structures and accurate needle placement [15].

The findings of this study therefore support the growing evidence that the suprainguinal fascia iliaca compartment block provides more effective and longer lasting postoperative analgesia for hip surgeries compared with the traditional infrainguinal approach. By providing improved

analgesic coverage and reducing opioid requirements, the suprainguinal technique may contribute to enhanced recovery protocols in orthopedic practice.

Conclusion

The present study demonstrates that the suprainguinal fascia iliaca compartment block provides superior postoperative analgesia compared with the infrainguinal approach in patients undergoing hip surgeries. Patients receiving the suprainguinal block experienced a longer duration before the requirement of rescue analgesia, lower postoperative pain scores, and reduced opioid consumption during the first 24 hours after surgery. Additionally, the incidence of certain opioid-related adverse effects such as nausea and vomiting was lower in the suprainguinal group. Both techniques were found to be safe; however, the suprainguinal approach offered more effective analgesic coverage due to improved spread of local anesthetic within the fascia iliaca compartment. Therefore, the suprainguinal fascia iliaca compartment block can be considered a preferable technique for postoperative pain management in hip surgeries.

References

1. Johnson RL, Kopp SL, Hebl JR, Erwin PJ, Mantilla CB. Falls and major orthopaedic surgery with peripheral nerve blockade: a systematic review and meta-analysis. Br J Anaesth. 2019;122(6):e130-e140.
2. Morrison RS, Dickman E, Hwang U, Akhtar S, Ferguson T, Huang J, et al. Regional nerve blocks improve pain and functional outcomes in hip fracture patients. J Am Geriatr Soc. 2019;67(8):1652-1658.
3. Desmet M, Vermeylen K, Van Herreweghe I, Carlier L, Missant C, Van de Velde M. A longitudinal supra-inguinal fascia iliaca compartment block reduces morphine consumption after total hip arthroplasty. Reg Anesth Pain Med. 2017;42(3):327-333.
4. Vermeylen K, Desmet M, Leunen I, Soetens F, Marcus MAE, Van de Velde M. Supra-inguinal injection for fascia iliaca compartment block results in more consistent spread toward the lumbar plexus. Reg Anesth Pain Med. 2019;44(4):483-491.
5. Safa B, Chaudhry H, Grewal S, Sharma S, Kulkarni A. Ultrasound-guided suprainguinal fascia iliaca compartment block for hip surgery: analgesic outcomes and opioid consumption. Anaesthesia. 2024;79(4):432-440.
6. Li Y, Liu J, Chen X, Zhang Y, Wang Y, Zhao Q. Ultrasound-guided suprainguinal fascia iliaca compartment block for hip surgery: systematic review and meta-analysis of randomized trials. Reg Anesth Pain Med. 2024;49(6):412-420.
7. Eshag MME, Abdelhamid SA, Farag AM, El-Sayed AH. Fascia iliaca compartment block for postoperative pain control after hip surgery: a systematic review and meta-analysis. J Clin Anesth. 2024;91:111021.
8. Huang KT, Lin JA, Hsu YW, Wang LK, Wang WJ, Lin TY. Supra-inguinal fascia iliaca block versus peri-capsular nerve group block for hip surgery: randomized controlled trial. J Clin Anesth. 2024;92:111030.
9. Mendes E, Carvalho R, Pereira P, Gomes R, Fernandes J. Timing of suprainguinal fascia iliaca block in hip hemiarthroplasty: randomized clinical trial. Anaesth Crit Care Pain Med. 2025;44(2):101405.
10. Ahmadzadeh S, Shadmehr A, Moradi M, Karimi M, Rezaei M. Supra-inguinal fascia iliaca block for postoperative pain management after hip surgery: narrative review of current evidence. Pain Res Manag. 2025;2025:8812456.
11. Vermeylen K, Desmet M, Leunen I, Soetens F, Marcus MAE, Van de Velde M. Supra-inguinal injection for fascia iliaca compartment block results in more consistent spread toward the lumbar plexus. Reg Anesth Pain Med. 2019;44(4):483-491.
12. Desmet M, Vermeylen K, Van Herreweghe I, Carlier L, Missant C, Van de Velde M. A longitudinal supra-inguinal fascia iliaca compartment block reduces morphine consumption after total hip arthroplasty. Reg Anesth Pain Med. 2017;42(3):327-333.
13. Hebbard P, Ivanusic J, Sha S. Ultrasound-guided suprainguinal fascia iliaca block: a cadaveric evaluation of a novel approach. Anaesth Intensive Care. 2011;39(4):605-610.
14. Kim DH, Beathe JC, Lin Y, YaDeau JT, Maalouf DB, Goytizolo EA, et al. Addition of regional anesthesia to multimodal analgesia for hip fracture surgery reduces opioid consumption. Anesth Analg. 2019;128(3):541-548.
15. Kukreja P, MacBeth L, Sturdivant A, Ghanem E, Kalagara H, et al. Ultrasound-guided fascia iliaca compartment block for hip fracture surgery improves postoperative analgesia and decreases opioid requirement. J Clin Anesth. 2021;68:110102.