

# Administration Case Report: Total Shoulder Replacement

**NON-OPIOID**  
**EXPAREL**<sup>®</sup>  
(bupivacaine liposome injectable suspension)

This case report represents the individual experience of Dr Maggie Holtz, and is intended to demonstrate her methodology for using EXPAREL in patients undergoing a total shoulder replacement procedure.

Pacira BioSciences, Inc. recognizes that there are alternative methodologies for administering local anesthetics, as well as individual patient considerations when selecting the dose for a specific procedure.

EXPAREL is a local anesthetic that produces postsurgical analgesia in patients aged 6 years and older. It is administered via single-dose infiltration. When infiltrated into the surgical site, it produces local analgesia. It may also be infiltrated in the fascial plane to produce regional analgesia as a regional field block. Regional anesthetic techniques to produce regional analgesia include, but are not limited to, transversus abdominis plane (TAP) block, pectoralis (PEC) and serratus anterior plane (SAP) blocks, erector spinae plane (ESP) block, and quadratus lumborum (QL) block. EXPAREL may also be administered as an interscalene brachial plexus nerve block in adults to produce postsurgical regional analgesia in total shoulder arthroplasty (TSA) and rotator cuff repair (RCR) procedures.

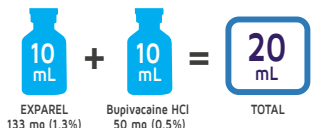
## CASE INFORMATION

|  |   |
|--|---|
| <b>Physician Name</b>                    | Maggie Holtz, MD  |
| <b>Affiliation</b>                       | Chief of Regional & Orthopedic Anesthesia, Georgia Anesthesiologists, P.C.<br>WellStar Kennestone Regional Medical Center, Marietta, GA |
| <b>Surgical Case Performed</b>           | Right total shoulder replacement  |
| <b>Inpatient or Outpatient Procedure</b> | Inpatient   |

## PATIENT CHARACTERISTICS

|  |  |
|--|--|
| <b>Gender</b>                              | Female   |
| <b>Age</b>                                 | 87 years   |
| <b>Patient History and Characteristics</b> | The patient presented with constant right shoulder pain that worsened with movement and had failed conservative therapy<br>Patient has a history of hypertension, hyperlipidemia, paroxysmal atrial fibrillation (currently in sinus rhythm), valvular heart disease (mild to moderate aortic insufficiency), and glaucoma |

## PROCEDURAL DETAILS

|  |   |
|--|---|
| <b>Preoperative Analgesics Used</b>          | IV acetaminophen 1000 mg<br>PO gabapentin 300 mg<br>PO celecoxib 400 mg   |
| <b>Nerve Block Performed</b>                 | Interscalene brachial plexus nerve block with 10 mL (133 mg) of EXPAREL admixed with 10 mL of 0.5% bupivacaine HCl  |
| <b>Dose of EXPAREL and Total Volume Used</b> |  <p>10 mL EXPAREL 133 mg (1.3%) + 10 mL Bupivacaine HCl 50 mg (0.5%) = 20 mL TOTAL</p> |

IV=intravenous; PO=by mouth.

The recommended dose of EXPAREL for adults is based on the size of the surgical site, the volume required to cover the area, and individual patient factors that may impact the safety of an amide local anesthetic. The maximum dose of EXPAREL should not exceed 266 mg. The recommended dose of EXPAREL for patients aged 6 to <17 years old is 4 mg/kg, up to a maximum of 266 mg. The maximum dose of EXPAREL for interscalene brachial plexus nerve block in adults should not exceed 133 mg.

EXPAREL can be administered unexpanded (20 mL) or expanded to increase volume up to a total of 300 mL (final concentration of 0.89 mg/mL [ie, 1:14 dilution by volume]) with normal (0.9%) saline or lactated Ringer's solution.

Bupivacaine HCl (which is approved for use in patients aged 12 and older) may be administered immediately before EXPAREL or admixed in the same syringe, as long as the ratio of the milligram dose of bupivacaine HCl to EXPAREL does not exceed 1:2. Admixing may impact the pharmacokinetic and/or physicochemical properties of EXPAREL, and this effect is concentration dependent. The toxic effects of these drugs are additive and their administration should be used with caution, including monitoring for neurological and cardiovascular effects related to local anesthetic systemic toxicity. Other than with bupivacaine, EXPAREL should not be admixed with other drugs prior to administration.

Please see Important Safety Information on reverse and refer to accompanying full Prescribing Information, which is also available at [www.EXPAREL.com](http://www.EXPAREL.com).

# DR HOLTZ'S INTERSCALENE BRACHIAL PLEXUS NERVE BLOCK TECHNIQUE

## Step #1:

To identify the brachial plexus, the patient was placed in a semi-Fowler's position with a shoulder roll between the scapulae to facilitate exposure. Skin was prepped, and a linear high-frequency probe was placed on the patient's neck superior to the clavicle. The image was then traced cephalad until the brachial plexus was identified between the anterior and middle scalene muscles.

## Step #2:

Under direct ultrasound visualization using an in-plane technique, Dr Holtz inserted a 20-gauge, 4-in echogenic needle from the lateral aspect of the transducer, through the middle scalene muscle, and advanced until the tip was just lateral to the brachial plexus between the C5 and C6 roots. After negative aspiration, Dr Holtz injected saline to confirm the desired placement of the needle tip. She then slowly administered an admixture of 10 mL of EXPAREL® (bupivacaine liposome injectable suspension) (133 mg) and 10 mL of 0.5% bupivacaine HCl (50 mg), with aspiration every 5 mL.

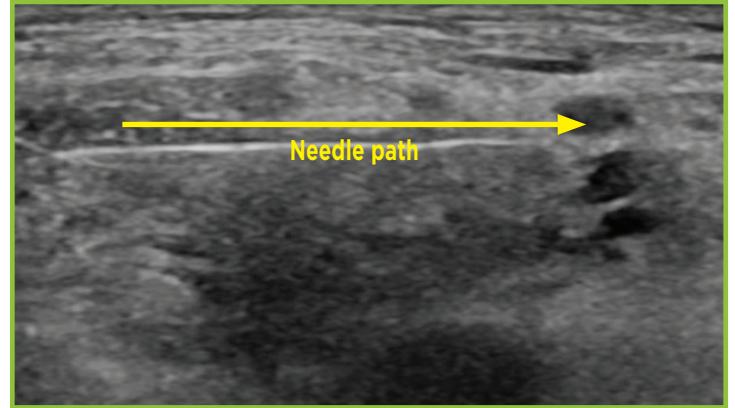


FIGURE. Interscalene brachial plexus nerve block ultrasound.

## Important Safety Information

EXPAREL is contraindicated in obstetrical paracervical block anesthesia.

Adverse reactions reported in adults with an incidence greater than or equal to 10% following EXPAREL administration via infiltration were nausea, constipation, and vomiting; adverse reactions reported in adults with an incidence greater than or equal to 10% following EXPAREL administration via interscalene brachial plexus nerve block were nausea, pyrexia, and constipation.

Adverse reactions with an incidence greater than or equal to 10% following EXPAREL administration via infiltration in pediatric patients six to less than 17 years of age were nausea, vomiting, constipation, hypotension, anemia, muscle twitching, vision blurred, pruritus, and tachycardia.

If EXPAREL and other non-bupivacaine local anesthetics, including lidocaine, are administered at the same site, there may be an immediate release of bupivacaine from EXPAREL. Therefore, EXPAREL may be administered to the same site 20 minutes after injecting lidocaine.

EXPAREL is not recommended to be used in the following patient populations: patients <6 years old for infiltration, patients younger than 18 years old for interscalene brachial plexus nerve block, and/or pregnant patients.

Because amide-type local anesthetics, such as bupivacaine, are metabolized by the liver, EXPAREL should be used cautiously in patients with hepatic disease.

## Warnings and Precautions Specific to EXPAREL

Avoid additional use of local anesthetics within 96 hours following administration of EXPAREL.

EXPAREL is not recommended for the following types or routes of administration: epidural, intrathecal, regional nerve blocks **other than interscalene brachial plexus nerve block**, or intravascular or intra-articular use.

The potential sensory and/or motor loss with EXPAREL is temporary and varies in degree and duration depending on the site of injection and dosage administered and may last for up to 5 days, as seen in clinical trials.

## Warnings and Precautions for Bupivacaine-Containing Products

**Central Nervous System (CNS) Reactions:** There have been reports of adverse neurologic reactions with the use of local anesthetics. These include persistent anesthesia and paresthesia. CNS reactions are characterized by excitation and/or depression.

**Cardiovascular System Reactions:** Toxic blood concentrations depress cardiac conductivity and excitability, which may lead to dysrhythmias, sometimes leading to death.

**Allergic Reactions:** Allergic-type reactions (eg, anaphylaxis and angioedema) are rare and may occur as a result of hypersensitivity to the local anesthetic or to other formulation ingredients.

**Chondrolysis:** There have been reports of chondrolysis (mostly in the shoulder joint) following intra-articular infusion of local anesthetics, which is an unapproved use.

**Methemoglobinemia:** Cases of methemoglobinemia have been reported with local anesthetic use.

**Disclosure:** Dr Holtz is a paid consultant for Pacira BioSciences, Inc.

Full Prescribing Information is available at [www.EXPAREL.com](http://www.EXPAREL.com).