UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER
PURSUANT TO RULE 13a-16 OR 15d-16
UNDER THE SECURITIES EXCHANGE ACT OF 1934

For the Month of: September 2025 (Report No. 5)

Commission File Number: 001-40753

ICECURE MEDICAL LTD.
(Translation of registrant's name into English)

7 Ha'Eshel St., PO Box 3163
Caesarea, 3079504 Israel
(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F:

☒ Form 20-F ☐ Form 40-F

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On September 22, 2025, IceCure Medical Ltd. (the "Company") issued a press release titled "IceCure's ProSense® Featured at CIRSE 2025 Annual Meeting: Positive Clinical Results with Cryoablation from 4 Independent Studies Presented," a copy of which is furnished as Exhibit 99.1 with this Report of Foreign Private Issuer on Form 6-K.

The press release attached herewith as Exhibit 99.1 (excluding the second paragraph thereof) is incorporated by reference into the Company's Registration Statements on Form F-3 (Registration Nos. 333-258660, 333-267272 and 333-290046) and Form S-8 (Registration Nos. 333-270982, 333-264578, 333-262620 and 333-281587), filed with the Securities and Exchange Commission, to be a part thereof from the date on which this Report of Foreign Private Issuer on Form 6-K is submitted, to the extent not superseded by documents or reports subsequently filed or furnished.

EXHIBIT INDEX

Exhibit No.	
99.1	Press release dated September 22, 2025 titled "IceCure's ProSense® Featured at CIRSE 2025 Annual Meeting: Positive Clinical Results with Cryoablation from 4 Independent Studies Presented"

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ICECURE MEDICAL LTD.

Date: September 22, 2025

By: /s/ Eyal Shamir
Name: Eyal Shamir
Title: Chief Executive Officer

Exhibit 99.1

IceCure's ProSense® Featured at CIRSE 2025 Annual Meeting: Positive Clinical Results with Cryoablation from 4 Independent Studies Presented

Presentations from 5 Key Opinion Leaders on ProSense® cryoablation including 3 independent studies on breast cancer and 1 on endometriosis

3 hands-on training sessions for doctors interested in using ProSense® were very well attended

Dedicated CIRSE focus session on the breast shows the growing interest from interventional radiologists to expand their practice to include care for breast cancer patients

CAESAREA, Israel, September 22, 2025 – IceCure Medical Ltd. (Nasdaq: ICCM) ("IceCure", "IceCure Medical" or the "Company"), developer of minimally-invasive cryoablation technology that destroys tumors by freezing as an option to surgical tumor removal, today announced its participation at the Cardiovascular and Interventional Radiology Society of Europe (CIRSE) Annual Meeting on September 13-17, 2025, in Barcelona, Spain. The Company hosted a large number of medical practitioners interested in ProSense® at its booth. Booth visitors experienced live demonstrations and learned about how ProSense®, a single-cryoprobe liquid nitrogen ("LN2") based cryoablation technology is shaping the future of interventional oncology, especially for breast cancer patients.

"We had a very successful participation at CIRSE this year, as ProSense® offers what we believe is the most advanced clinically proven LN2 cryoablation system to the growing number of interventional radiologists looking to grow their practice in breast care," stated IceCure's Chief Executive Officer, Eyal Shamir. "As always, we truly appreciate the medical doctors who have conducted their own investigator-initiated studies of ProSense® and who continue to actively share their findings and positive experiences with their colleagues at these important medical conferences."

ProSense® was featured in the following:

- 3 Hands-on device trainings for cold ablation featuring ProSense® were conducted
    - Honorary lecture "Breaking barriers in breast cancer - cryoablation as the ultimate expression of IO's de-escalation philosophy," delivered by Dr. Franco Orsi, Chief of Interventional Radiology, European Institute of Oncology, Milan, Italy. The lecture focused on the evolution of breast cancer treatment from radical surgery, through lumpectomy, to current treatment alternatives
    - Dr. Orsi highlighted the PRECICE trial and ProSense® cryoablation system as the study's chosen technology to treat breast cancer patients
    - PRECICE, an independent study led by Dr. Orsi and the European Institute of Oncology, with sponsorship from the Italian Ministry of Health, is exclusively using ProSense® to treat 234 Luminal A and B patients >50 years of age with early-stage breast cancer, a wider population of patients than IceCure's ICE3 study
- 3 presentations on breast cancer were delivered during the *Focused Therapies for Challenging Tumors* session
    - *Abstract Title:* **Comparative assessment of non-surgical treatment strategies for breast cancer: evaluating the effectiveness of cryoablation with hormonal therapy versus cryoablation alone and hormonal therapy alone in patients deemed ineligible for surgery**;
        - *Presenter:* Dr. Sofia Baldi Giorgi, Radiology Resident, Careggi University Hospital, Florence, Italy
    - *Study's Focus*: To evaluate the most effective non-surgical treatment for breast cancer in patients ineligible for surgery by comparing ultrasound-guided cryoablation combined with hormonal therapy ("HT") versus cryoablation alone and HT alone; mean age 83.4 years
        - *Key Findings:* Cryoablation combined with HT significantly reduced mean tumor size and residual disease compared to HT alone, supporting its potential as a promising treatment for surgery-ineligible patients

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    - *Abstract Title:* **Cryoablation for Small HR+ Breast Cancers in Elderly Patients: A Prospective Study of the First 55 Patients Treated at Institut Curie**
        - *Presenter:* Dr. Toulsie Ramthohul, Interventional Radiologist, Institut Curie Hospital, Paris, France
        - *Study's Focus:* Prospective study that evaluated the clinical and radiological outcomes of the first 55 patients treated at Institute Curie with cryoablation as an alternative to surgery for cT1 hormone receptor-positive (HR+) human epidermal growth factor receptor 2- negative (HER2-) breast cancers in elderly patients; median age was 86 years; age range 75-94 years
        - *Key Findings:* Cryoablation using ProSense® is a safe and effective alternative to surgery for elderly patients with small HR+/Her2- breast cancers, even in high-risk populations
    - *Abstract Title:* **Differential efficacy of cryoablation in breast tumor subtypes: ultrasound-guided scar biopsy evaluation one-year post-treatment**
        - *Presenter*: Dr. Francesca Pugliese, Radiology Resident, EdiR, Breast Imaging, Careggi University Hospital, Florence, Italy
        - *Study's Focus:* To assess the effectiveness of cryoablation in different subtypes of breast tumors, a cohort of 39 inoperable biopsy-proven B5 (malignant) lesions underwent ultrasound-guided scar biopsy evaluations one year post-treatment
        - *Key Findings:* Cryoablation was found to be a safe and effective option for patients with small, low-grade hormone receptor-positive (HR+), unifocal invasive ductal carcinoma (IDC) (the patient cohort evaluated in the study), offering a potential alternative to breast-conserving surgery.
- Presentation of a study by Dr. Ghizlane Touimi Benjelloun, Chu De Nîmes, Nîmes, Franceon ProSense® in the treatment of abdominal wall endometriosis by
        - *Presenter:* Prof. Julien Frandon, Director of the Interventional Radiology Department, Nîmes University Hospital
        - *Abstract Title:* **Efficacy and safety of percutaneous single probe cryoablation using liquid nitrogen in treatment of abdominal wall endometriosis**
        - *Study's Focus:* To evaluate the effectiveness and safety of percutaneous image-guided single probe cryoablation in treating symptomatic abdominal wall endometriosis ("AWE") lesions, with a focus on pain relief and treatment outcomes

- *Key Findings:* Pain scores significantly decreased from a mean of 8 on a scale of 1 to 10 to a mean of 1 on a scale of 1 to 10. MRI showed necrotic changes and resolution of hemorrhagic signals in 95% of cases. Cryoablation preserved aesthetic outcomes, with no visible scars. Percutaneous cryoablation was found to be a safe and effective alternative to surgery for AWE, offering significant pain relief with minimal morbidity

About ProSense®

The ProSense® Cryoablation System provides a minimally invasive treatment option to destroy tumors by freezing them. The system uniquely harnesses the power of liquid nitrogen to create large lethal zones for maximum efficacy in tumor destruction in benign and cancerous lesions, including breast, kidney, lung, and liver.

ProSense® enhances patient and provider value by accelerating recovery, reducing pain, surgical risks, and complications. With its easy, transportable design and liquid nitrogen utilization, ProSense® opens that door to fast and convenient office-based procedures for breast tumors.

About IceCure Medical

IceCure Medical (Nasdaq: ICCM) develops and markets advanced liquid-nitrogen-based cryoablation therapy systems for the destruction of tumors (benign and cancerous) by freezing, with the primary focus areas being breast, kidney, bone and lung cancer. Its minimally invasive technology is a safe and effective alternative to hospital surgical tumor removal that is easily performed in a relatively short procedure. The Company's flagship ProSense® system is marketed and sold worldwide for the indications cleared and approved to date including in the U.S., Europe and Asia.

Forward Looking Statements

This press release contains forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995 and other Federal securities laws. Words such as "expects," "anticipates," "intends," "plans," "believes," "seeks," "estimates" and similar expressions or variations of such words are intended to identify forward-looking statements. For example, IceCure is using forward looking statements in this press release when it discusses the belief that ProSense® offers the most advanced clinically proven LN2 cryoablation system. Historical results of scientific research and clinical and preclinical trials do not guarantee that the conclusions of future research or trials will suggest identical or even similar conclusions. Important factors that could cause actual results, developments and business decisions to differ materially from those anticipated in these forward-looking statements include, among others: the Company's planned level of revenues and capital expenditures; the Company's available cash and its ability to obtain additional funding; the Company's ability to market and sell its products; legal and regulatory developments in the United States and other countries; the Company's ability to maintain its relationships with suppliers, distributors and other partners; the Company's ability to maintain or protect the validity of its patents and other intellectual property; the Company's ability to expose and educate medical professionals about its products; political, economic and military instability in the Middle East, specifically in Israel; as well as those factors set forth in the Risk Factors section of the Company's Annual Report on Form 20-F for the year ended December 31, 2024 filed with the SEC on March 27, 2025, and other documents filed with or furnished to the SEC which are available on the SEC's website, www.sec.gov. The Company undertakes no obligation to update these statements for revisions or changes after the date of this release, except as required by law.

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