CLAIMS

1. A catheter, comprising:

a catheter body having a lumen and a distal lumen opening, the lumen extending through the catheter body along a longitudinal axis of the catheter body;

a hole formed through a wall of a distal portion of the catheter body;

a portion of a proximal surface of the hole being inclined at an acute angle with respect to the longitudinal axis of the catheter body, the acute angle opening proximally with respect to the catheter body.

2. The catheter of claim 1, wherein the acute angle is between 20° and 80°.

3. The catheter of claim 1, further comprising a distal surface of the hole being inclined at an acute angle with respect to the longitudinal axis of the catheter body, the acute angle opening distally with respect to the catheter body.

4. The catheter of claim 3, wherein the acute angle of the distal surface of the hole is between about 20° and about 90°.

5. The catheter of claim 1, further comprising:

a second hole formed through a wall on a distal portion of the catheter body;

a portion of a proximal surface of the second hole being inclined at an acute angle with respect to the longitudinal axis of the catheter body, the acute angle opening proximally with respect to the catheter body.

6. The peripheral catheter of claim 1, wherein the hole has a substantially D-shaped inner opening.

7. The catheter of claim 1, wherein the hole includes a substantially tear-drop shaped outer opening.

8. The catheter of claim 7, wherein the hole includes a substantially circular inner opening.

9. The catheter of claim 7, wherein the hole includes a substantially D-shaped inner opening.

10. The peripheral catheter of claim 1, wherein the proximal surface of the hole is rounded.

11. The peripheral catheter of claim 1, wherein the proximal surface of the hole is substantially planar.

12. The peripheral catheter of claim 1, wherein the hole is at least partially disposed on a tapered tip of the distal end of the catheter body.

13. The catheter of claim 1, wherein the catheter is a peripheral catheter having a truncated length sufficient to access a peripheral vein of a patient and an outer diameter less than or equal to that of a twelve gauge catheter.

14. The catheter of claim 1, wherein the hole includes an inward projection on an inner surface of the hole.

15. A peripheral catheter, comprising:

a catheter body having a lumen and a distal lumen opening, the lumen extending through the catheter body along a longitudinal axis of the catheter body, the catheter body further having a truncated length sufficient to access a peripheral vein of a patient;

two or more holes formed through a wall of a distal portion of the catheter body;

a proximal surface of the two or more holes being inclined at a first acute angle with respect to the longitudinal axis of the catheter body, the first acute angle opening proximally with respect to the catheter body.

a distal surface of the two or more holes being inclined at a second acute angle with respect to the longitudinal axis of the catheter body, the second acute angle opening distally with respect to the catheter body.

16. The catheter of claim 15, wherein the acute angle is between about 20° and about 80°.

17. The peripheral catheter of claim 15, wherein the two or more holes have substantially D-shaped inner openings.

18. The peripheral catheter of claim 15, wherein at least one of the two or more holes is at least partially disposed on a tapered tip of the distal portion of the catheter body.

19. The peripheral catheter of claim 15, further comprising a distal surface of the hole being inclined at an acute angle with respect to the longitudinal axis of the catheter body, the acute angle opening distally with respect to the catheter body.

20. A peripheral intravenous catheter, comprising:

a catheter body having a lumen and a distal lumen opening, the lumen extending through the catheter body along a longitudinal axis of the catheter body, the catheter body further having a truncated length sufficient to access a peripheral vein of a patient;

two or more holes formed through a wall of a distal portion of the catheter body;

a proximal surface of the two or more holes being inclined at a first acute angle between about 20° and about 80° with respect to the longitudinal axis of the catheter body, the first acute angle opening proximally with respect to the catheter body.

a distal surface of the two or more holes being inclined at a second acute angle with respect to the longitudinal axis of the catheter body, the second acute angle opening distally with respect to the catheter body.

CLAIMS

1. A catheter, comprising:

a catheter body consisting of a single lumen having an inner diameter and a constant outer diameter;

a tapered tip coupled to a distal end of the catheter body and having a single distal lumen opening, the single lumen of the catheter body extending through the catheter body and the tapered tip along a longitudinal axis of the catheter body;

a hole formed through a wall of at least a portion of the tapered tip and having a width that is less than the inner diameter of the single lumen; and

a portion of a proximal surface of the hole being inclined at an acute angle with respect to the longitudinal axis of the catheter body, the acute angle opening proximally with respect to the catheter body.

2. The catheter of claim 1, wherein the acute angle is between 20° and 80°.

3. The catheter of claim 1, further comprising a distal surface of the hole being inclined at an acute angle with respect to the longitudinal axis of the catheter body, the acute angle opening distally with respect to the catheter body.

4. The catheter of claim 3, wherein the acute angle of the distal surface of the hole is between about 20° and about 90°.

5. The catheter of claim 1, further comprising:

a second hole formed through a wall on a distal portion of the catheter body;

a portion of a proximal surface of the second hole being inclined at an acute angle with

respect to the longitudinal axis of the catheter body, the acute angle of the second hole opening proximally with respect to the catheter body.

6. The peripheral catheter of claim 1, wherein the hole has a substantially D-shaped inner opening.

7. The peripheral catheter of claim 1, wherein the proximal surface of the hole is substantially planar.

8. The peripheral catheter of claim 1, further comprising a tapered tip coupled to a distal end of the catheter body, wherein the hole is at least partially disposed on the tapered tip.

9. The catheter of claim 1, wherein the catheter is a peripheral catheter having a truncated length sufficient to access a peripheral vein of a patient and an outer diameter less than or equal to that of a twelve gauge catheter.

10. A peripheral catheter, comprising:

a catheter body having a single lumen extending through the catheter body along a longitudinal axis of the catheter body and having an inner diameter, the catheter body having a constant outer diameter and further having a truncated length sufficient to access a peripheral vein of a patient;

a tapered tip coupled to a distal end of the catheter body and having a single distal lumen opening in communication with the single lumen;

two or more holes formed through a wall of the tapered tip, the two or more holes each having a width that is less than the inner diameter of the single lumen;

a proximal surface of the two or more holes being inclined at a first acute angle with respect to the longitudinal axis of the catheter body, the first acute angle opening proximally with respect to the catheter body; and

a distal surface of the two or more holes being inclined at a second acute angle with respect to the longitudinal axis of the catheter body, the second acute angle opening distally with respect to the catheter body.

11. The catheter of claim 10, wherein at least one of the first and second acute angles is between about 20° and about 80°.

12. The peripheral catheter of claim 10, wherein the two or more holes have substantially D-shaped inner openings.

13. A peripheral intravenous catheter, comprising:

a catheter body having a single lumen extending through the catheter body along a longitudinal axis of the catheter body, the catheter body further having a truncated length sufficient to access a peripheral vein of a patient;

a tapered tip coupled to a distal end of the catheter body and having a single distal lumen opening in communication with the single lumen;

two or more holes formed through a wall of the tapered tip and a portion of at least one of the two or more holes being formed in the catheter body, and each of the two or more holes having a width that is less than a diameter of the single lumen;

a proximal surface of the two or more holes being inclined at a first acute angle between about 20° and about 80° with respect to the longitudinal axis of the catheter body, the first acute angle opening proximally with respect to the catheter body; and

a distal surface of the two or more holes being inclined at a second acute angle with respect to the longitudinal axis of the catheter body, the second acute angle opening distally with respect to the catheter body.